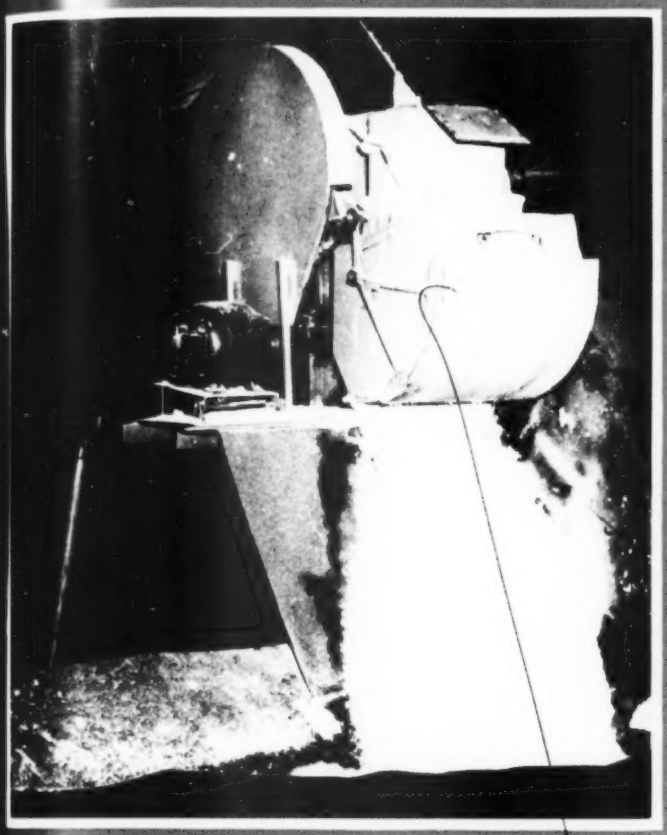
JUNE 1960

The Paper Industry



Sawdust weigher and recorder at Flambeau Division mill.

DETROIT PUBLIC L
JUN 20 1960
TECHNOLOGY
DEPARTMENT

- Solid lubricants in the paper industry
- Maintenance control program
- Sawdust weigher and recorder for chipper efficiency
- Adhesive application in the paper industry
- The "Double-Seal" ball valve

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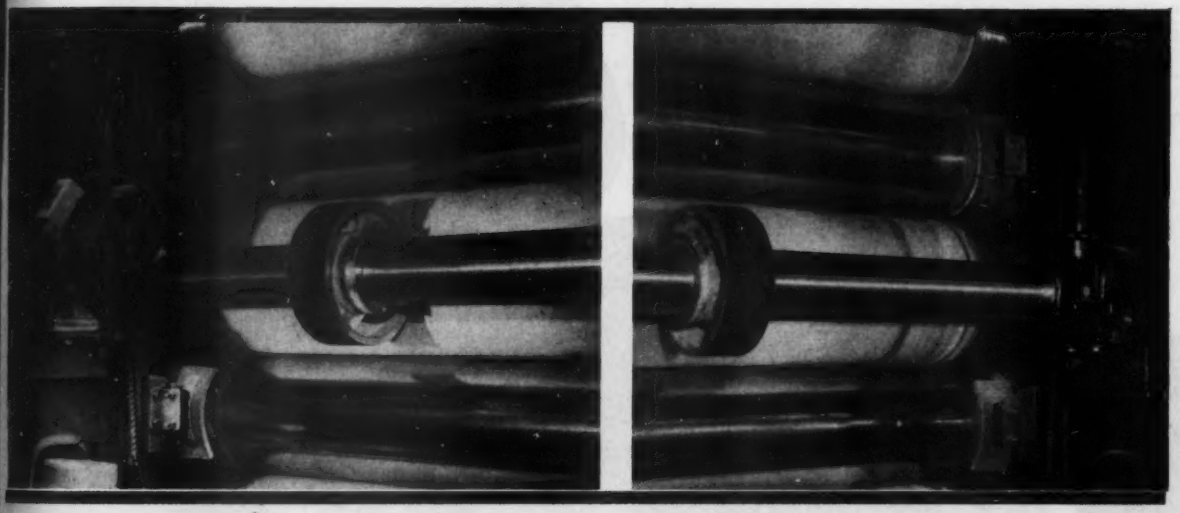

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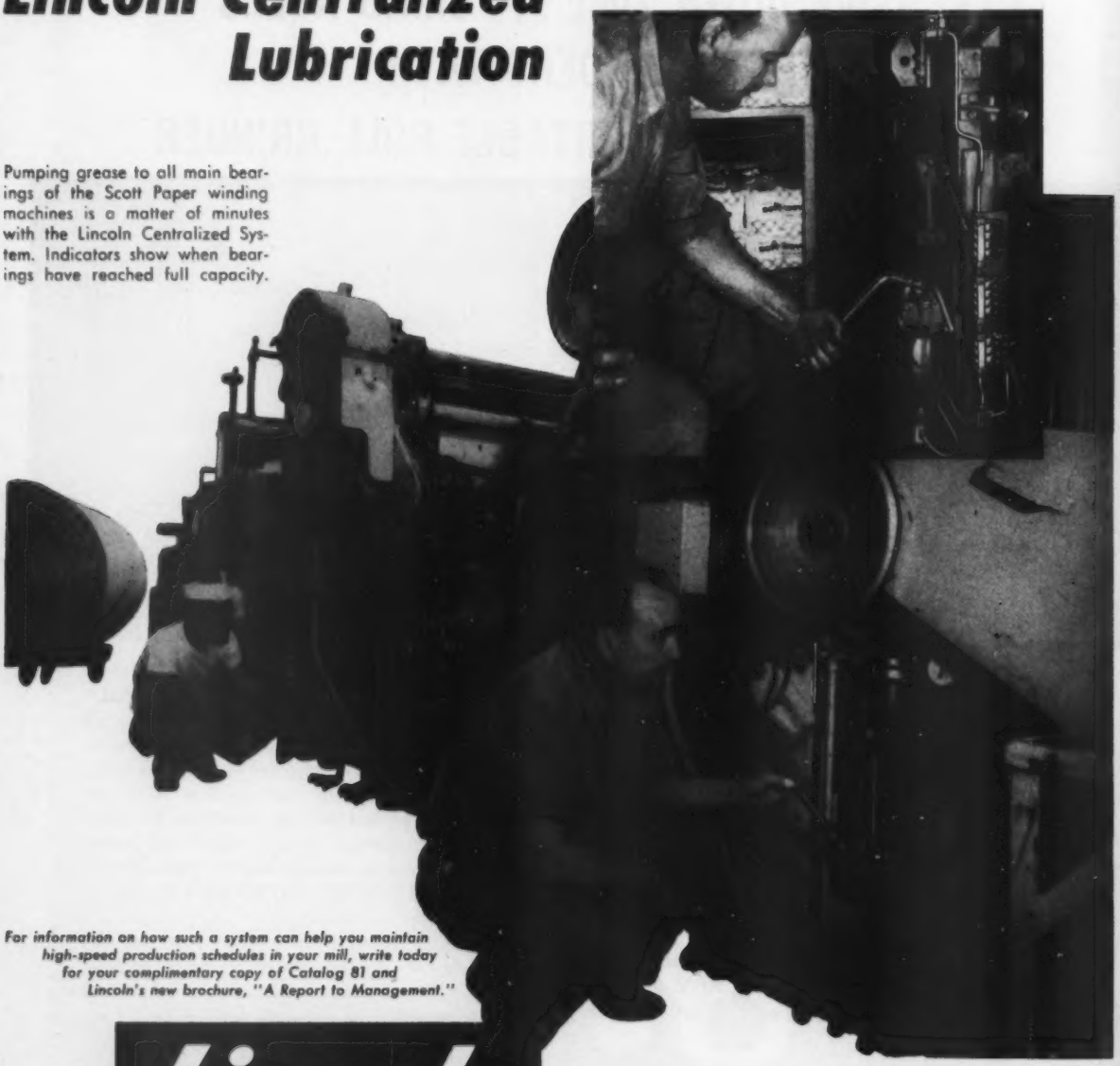

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The Paper Industry

Technology • Engineering • Management • Production

VOLUME 42 **NUMBER 3** **JUNE 1960**

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President and General Manager
A. SCOTT DOWD

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Advertising Representatives:

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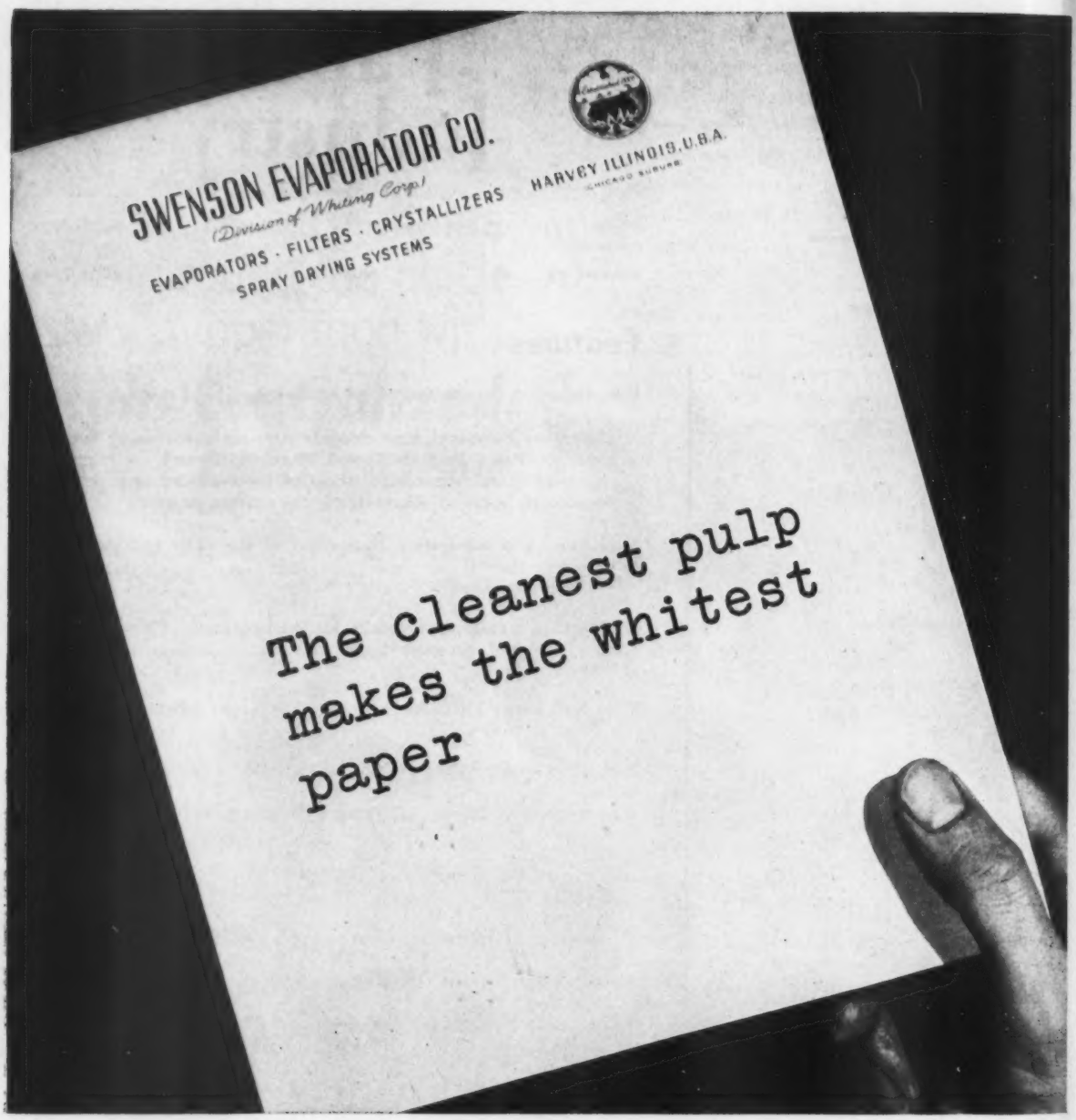

Clean pulp is a basic requirement for economical bleached pulp and white paper production. Swenson pulp washers provide this clean pulp—and produce it with an extremely low dilution of the recovered black liquor. As a result, both bleaching costs and chemical recovery costs are held to a minimum. These operating advantages are backed by proven mechanical reliability and such features as self-aligning roller bearings and high strength deck construction. Specify Swenson pulp washing equipment.

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From our point of view..

A more determined effort needed to expand our exports

It is gratifying to note the increasing emphasis placed by both government and industry on the development of techniques and on the need for the expansion of the nation's exports. Considering that, for the past two years in succession, we spent some $3 billion more in foreign countries than we received from them, we welcome the vigorous renewal of a drive to expand our exports as a means of curbing the dollar outflow and thereby bringing our total foreign payments and total receipts into better balance.

The sudden concern with which the U.S. pulp and paper industry is viewing the export picture stems from European Free Trade Association's recent decision to grant Norway and Sweden (who are members of the Association) a 20 per cent tariff preference on their exports to the United Kingdom. It is a well known fact that the U. K. is a major market for our exports of paper and paperboard and the EFTA's decision therefore puts us at a serious competitive disadvantage in this market.

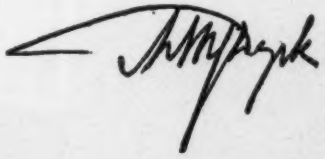
The picture is further complicated by the 6 per cent tariff that will be imposed on all grades of chemical pulp imported by the Common Market countries, although each of these countries is at liberty to fill its own pulp requirements on a tariff-free basis (without the right however to re-export such procurement to another Common Market country). This 6 per cent tariff imposition on chemical pulp could affect some 200,000 tons of the wood pulp normally exported by the U.S.A. to Common Market countries.

In line with this country's drive for a larger share of the export market, the U.S. government plans to double the number of its present 120 commercial officers stationed abroad, develop training programs for such officers and establish trade centers in certain locations where U.S. industry will have a chance to exhibit its product on a constantly changing basis.

This is a positive step forward. However, when one considers that the United Kingdom has posted 50 such commercial officers in this country alone, it is doubtful whether a mere doubling of our 120 officers on a global area would mean much more than just a minimum of the required effort needed for the promotion of this country's export business.

With the resurgence of Western Europe and Japan in world trade, the threatening Soviet trade offensive and the growing deficit in the U.S. balance of payments, we have too much at stake to tackle this problem with half-measures.

To operate competitively, in what should be this country's share of the world market, will require resourcefulness and a market research program on the part of both government and industy that is unmatched by the efforts of any other country.



For good boxboard mix good materials with good refining

Bauer Pump-Through Refiners help Federal Paper Board Company, Inc. meet its customers' demands for better packaging materials. Use of these refiners on virgin pulp and secondary fibers for liner stock preserves fiber length and produces a stronger, freer draining, better forming furnish. The result: a good boxboard with high sales appeal. For firsthand information on how Pump-Through Refiners can help in your mill, call your Bauer representative.

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One of the two Bauer 32-inch Pump-Through Refiners working on top liner stock at Federal's Mill at New Haven, Connecticut.

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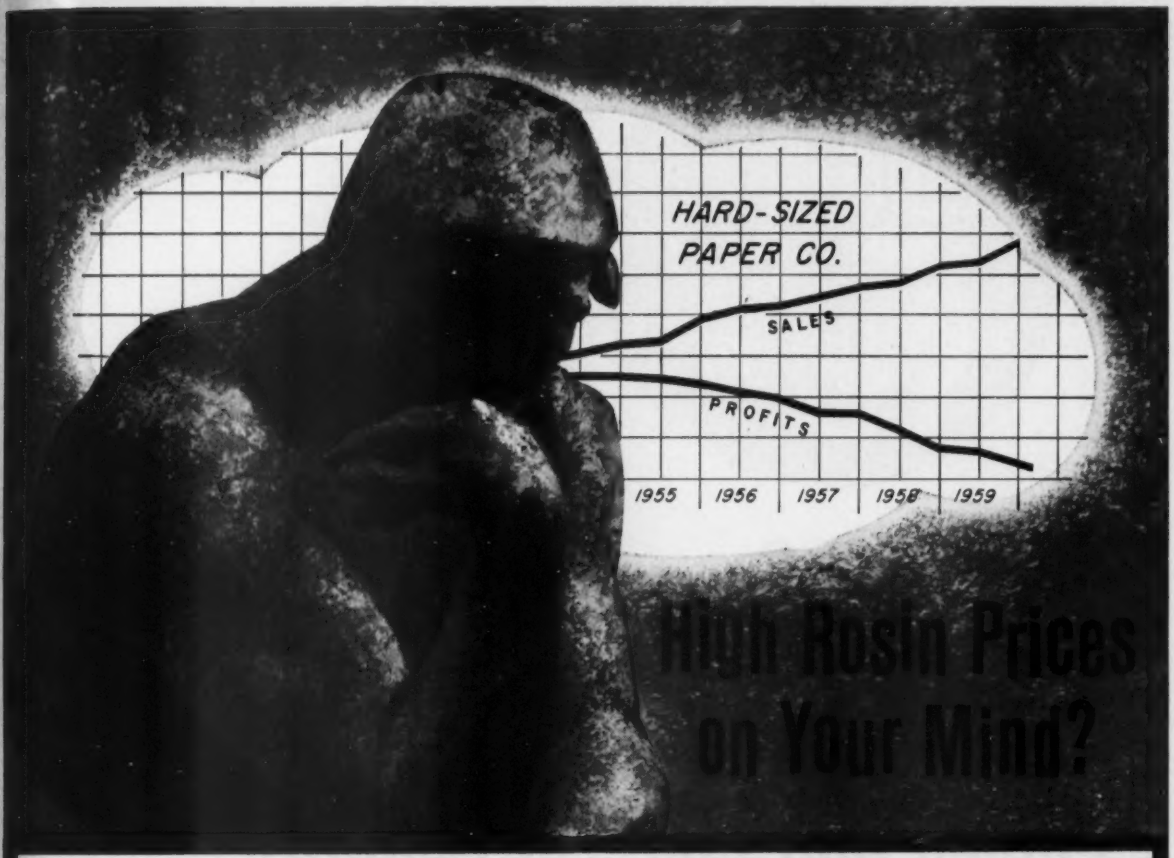

RCI WETstrez P-685 Cuts Rosin Size Requirements!

• Now, more than ever, this modified acid-curing urea-formaldehyde resin affords money-saving advantages. *WETstrez P-685 has the unique ability to reduce by ⅓ to ½ the amount of rosin needed in hard-sized paper.*

Yet paper quality is maintained, or even upgraded!

When added to starch at the size press, WETstrez P-685 improves the dimensional stability and increases the wax pick of the sheet. Higher Mullen and tensile strengths are obtained.

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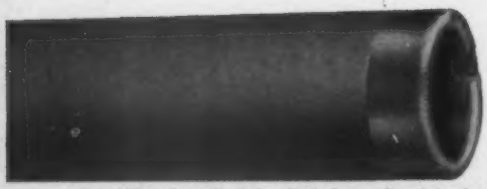

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The toughest clothing
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KRAFT MACHINES

NEW RESISTEX® FELTS

New Resistex felts embody the most advanced design techniques with the best of chemical treatments. Engineered for Kraft machines, exclusively by Huyck, these felts provide . . .

GREATER RESISTANCE TO
WEAR • STRETCHING • PLUGGING
CHEMICAL AND MILDEW DAMAGE
SHELL MARKING • EDGE FAILURE

Beyond this, Resistex felts are equally noted for efficient water removal and good finish properties.

A leading mill scored a new record, running Kraft, with Resistex felts on the 1st and 2nd press positions of its machine, at speeds up to 1,800 f.p.m. for 48.3 and 38.5 days respectively. Felts were removed for a change in grade with life remaining.

Your Huyck Sales and Field Service Engineers will be glad to show you how Resistex felts can help you produce more and better Kraft at lower felt cost per ton.

HUYCK FELTS

Huyck Felt Co.,
Rensselaer, N. Y.;
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In Canada: Kenwood Mills Ltd.,
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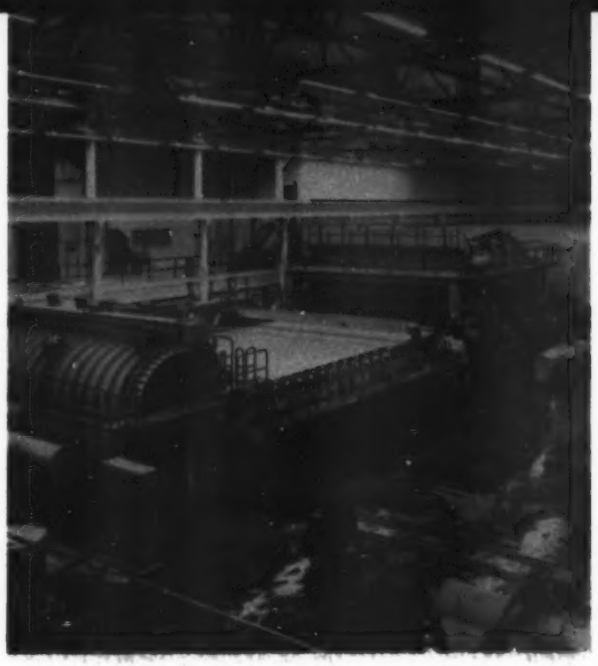
NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

The toughest clothing
ever made for

NEWSPRINT MACHINES



NEW RESISTEX® FELTS

Engineered for newsprint machines, exclusively by Huyck — new Resistex felts incorporate the most advanced design techniques with the best of chemical treatments. Result: an entirely new type of felt that has . . .

GREATER RESISTANCE TO
WEAR • STRETCHING • PLUGGING
CHEMICAL AND MILDEW DAMAGE
SHELL MARKING • EDGE FAILURE

In addition, Resistex felts provide for efficient water removal and good finish properties.

One present user scored a new record, running newsprint on a Resistex suction transfer felt at speeds over 2,000 f.p.m. for 29 days; others, including those using felts woven endless, report more tons of paper per pound of felt than previously achieved.

Your Huyck Sales and Field Service Engineers, who share your interest in producing more and better newsprint, will be glad to show how Resistex felts can benefit you.

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NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

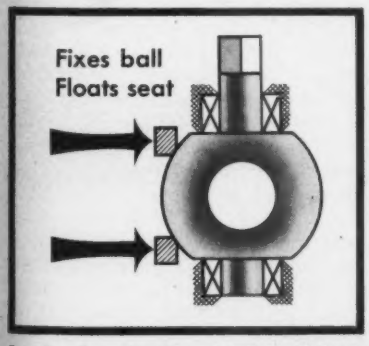
Can A Ball Valve Operate, Cycle After Cycle, With No Maintenance At All?

Read this remarkable answer, and discover an amazing engineering feat.

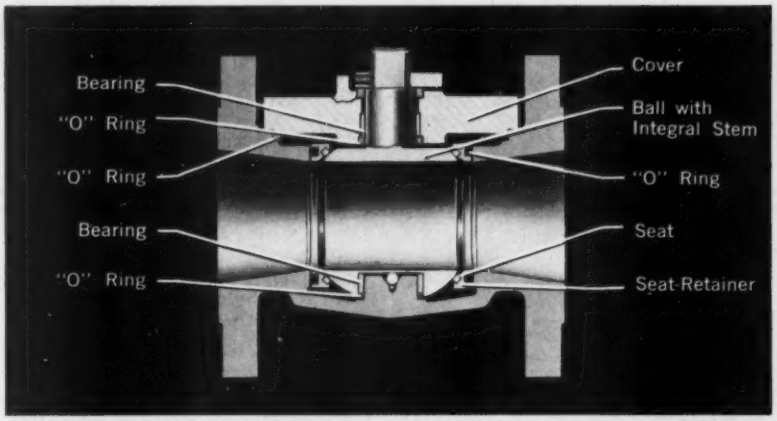
As most engineers know, ball valves offer a number of distinct advantages over all other types of valves . . . 90° on-off, minimum pressure drop, positive on-off indication, no lubrication, and compactness. In common with other valves, however, the design was insufficient to overcome the problem of continual maintenance.

Four years ago, this problem was faced by Hydromatics, Inc. in the valves that they produced for use in missiles, aircraft and ground support systems. Then, as today, all other ball valves were built with a ball that floated in its socket, and sealed by being forced against its seat by the pressure in the line. This caused seat distortion which made early replacement necessary.

Hydromatics tried a different approach. Rather than use the traditional floating ball, their engineers fixed the ball in bearings.



In the bearing-fixed **FLO•BALL** valve all pressure forces exerted on the ball are transmitted to low-friction bearings, thus eliminating down-stream seat distortion due to ball load. The pressure balanced seat, with its teflon sealing surface, is continually self-adjusted by the O-ring in the seat retainer.

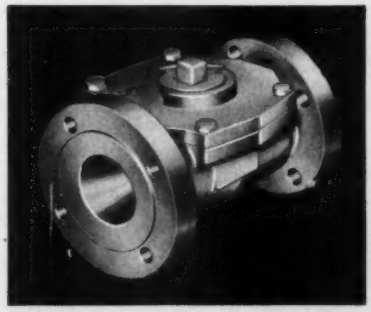


This O-ring acts as a self-energizing force that keeps the teflon seat always in contact with the ball. This insures positive sealing without seat distortion, and minimizes seat-resisting frictional forces. The combination of these low frictional forces results in low operating torque and extremely long seat life.

The bearing-fixed **FLO•BALL** valve proved itself immediately. Hundreds of missile and spacecraft systems, previously impossible, were made possible with these valves. The X-15, America's first manned space vehicle, for instance, has a Hydromatics **FLO•BALL** valve at its heart. Since its inception, the **FLO•BALL** has been used in more varied applications than all other ball valves combined.

Now, after the toughest application testing in history, bearing-fixed **FLO•BALL** valves are being mass produced for industry. They are available for off-the-shelf delivery to standard ASA dimensions in semi-steel, carbon steel, stainless steel, and aluminum. They operate at pressures to 600 psi, temperatures to 400°F and hold vacuum to 10^{-6} mm. of Hg!

The bearing-fixed **FLO•BALL** offers extra ball valve advantages. Top loading for easy access without removing the valve from the line, plus three features that are absolutely unique! Self-adjusting seats which automatically compensate for wear, proportional sealing force which automatically increases with line pressure, and the lowest torque, by far, of any valve. These combine to make the **FLO•BALL** valve virtually maintenance-free!



How long does it last without maintenance? Frankly, we don't know, since the first valves we ever built are still going strong and outlasting other valve types by more than 10-to-1. But don't take our word for it. See for yourself. Call, write or TWX for further information.

Hydromatics, Inc.
Livingston, New Jersey
Telephone: WYman 2-4900
TWX-LIVINGSTON NJ 120

For more data circle 109 on Post Card

Lubricants and lubrication equipment in the pulp and paper industry

Part II – Solid lubricants in pulp and paper making

HARRY GERSTUNG
Alpha-Molykote Corp.

THE SOLID lubricants — particularly the molybdenum disulfide products — are making news by solving production problems in papermaking where the following conditions exist:

(a) Elevated bearing temperatures.
(b) Extreme bearing pressures.
(c) Low speeds (under high loads).
(d) Lubrication-removing influences, such as water or steam, close to bearing areas.
(e) Static squeeze and long neglect, as in threaded connections which tend to seize and gall.

A wide variety of molybdenum disulfide grades and formulations, for both general-purpose and special-purpose lubrication, have already been made available since the first commercialization of MoS_2 for industrial lubrication in 1948. Previously, graphite was the only practical solid lubricant.

The difficulty with traditional liquid lubricants (oils and greases) in the severe environments listed, is that they are organic. They oxidize, evaporate, emulsify or decompose under conditions which won't affect the lamellar solid MoS_2. Further, high bearing loads and low speeds will tend to squeeze liquid lubricants out of bearings, whereas molybdenum disulfide particles actually bond to the bearing surface. Molybdenum disulfide lubrication boasts startlingly long service life, and (as Fig. 3 will show) actually improves in lubricity with increased load.

Fig. 1 shows, diagrammatically, the distinction between hydrodynamic lubrication (by liquids) and lubrication by solids. Observe the roughness (asperities) of the bearing surfaces, and how the peaks might interfere or "cold weld" if the lubricant is forced out of the interface. The second pair of diagrams in Fig. 1 suggest how the solid particles of lubricant under load protect the asperities of the approaching surfaces from direct metal-to-metal contact, and provide lubricity by shear of the lubricant flakes.

Before discussing the physics and chemistry of lubrication by solids, and attempting a condensed inventory of the types of molybdenum disulfide lubricants currently available for paper mill use, let us review some of the encouraging field experience already collected in the paper industry with the new approach to machine lubrication.

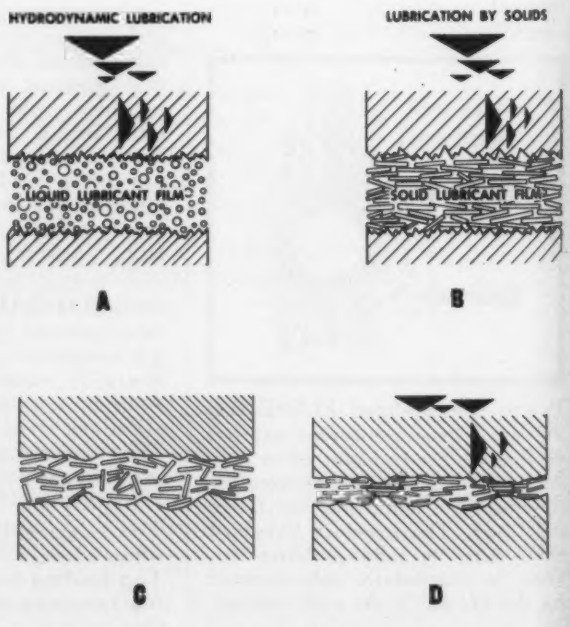


Fig. 1. Diagrammatic illustration of lubrication by liquids and solids.

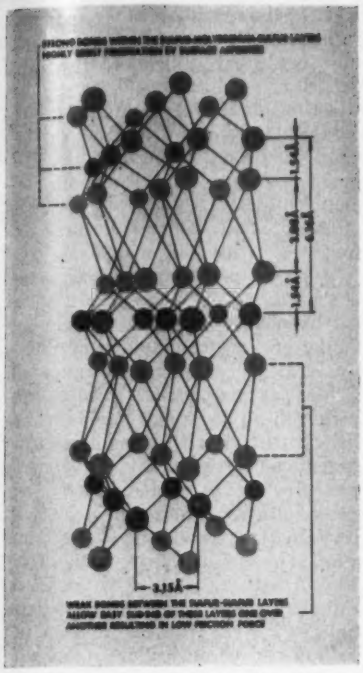


Fig. 2. Arrangement of Mo and S atoms in the layer lattice of the MoS_2 particle.

Paper mill experience

A California converter reports changing from conventional EP greases to a concentrate of molybdenum disulfide in a mineral oil paste with a lithium soap base (type G) on its creeping machine press roll bearings. The purpose of the switch was to reduce bearing heat (which was accomplished) but a more dramatic before-and-after comparison was in starting load. Starting load dropped from 50 amperes to 28 amperes, a full 44 per cent. This meant lower "peak demand" for electric current (and could have affected rates). The top bearing involved was of bronze, 5 in. in diameter by 12 in. long; the bottom one was of babbitt, 8¾ in. in diameter by 22 in. long. Both rolls were 148 in. long. The upper roll with its loading represented 3 tons at the bearing; the lower one 6 tons.

Additional experience comes from the precise West Germans who have gone further than we Americans in applying solid lubrication.

A cellulose mill on the Danube uses a multi-purpose, lithium-base grease containing just 3 per cent of fine-particle-size MoS_2 (the type BR-2 lubricant) — on all antifriction bearings in hot environments. It cites better performance at one pair of roller bearings serving under an ambient of 260°F, and another pair at the main drive serving at 248°F. Both sets of bearings had "formerly run dry too often." The ball-bearings on the drying units at the same mill are now also lubricated with MoS_2 and exposed to steam and water at 212°F "with no loss of lubrication despite considerably extended lubrication intervals".

In the Dusseldorf area a paper and cellulose plant applied a stable colloidal dispersion of sub-micron molybdenum disulfide particles in a medium weight mineral oil (type M-55) to the main calender bearing (ring feed). The bearing is loaded with 75,000 lbs. Bearing temperature dropped from 239°F to 149°F.

So rapidly is molybdenum disulfide lubrication growing in Germany that paper-making machine manufacturer J. Eck & Sohne of Dusseldorf, publishes the specifications given in Table 1 — recommending some form of MoS_2 lubrication to improve results at every bearing or slide in his calendering and rolling equipment. Observe the footnote to the Eck specification which reports that "all sleeve bearings and gears (four locations on the chart) are pretreated before shipment with the G-type paste, by rubbing and dry run-in." This "plates" the bearing surfaces with dry lubricant before the machine is shipped.

The Eck specifications for paper-making machinery are primarily concerned with the three types of molybdenum disulfide lubricants already mentioned — the M-55 oil additive, the type-G paste and the BR-2 lithium-base grease for gun application. An interesting odd specification is the type-165X for open gear trains. This is a resinous petroleum compound containing MoS_2 in suspension, cut back with volatile solvents. It dries to a tacky consistency. It carries well from one gear to another in a train for transfer-lubrication; and subsequent evaporation of the diluent leaves a plastic film which strongly resists being washed off by water and doesn't attract dust.

TABLE 1

Roller Bearings (Unheated)	
Antifriction Bearings Under High Loads	Add 5% by volume of MOLYKOTE Type M-55 to oil
Roller Bearings (Heated, Continuous Bearing Temperature above 150°C)	
Sleeve Bearings	Add 5% by volume of MOLYKOTE Type M-55 to oil*
Antifriction Bearings	Add 5% by volume of MOLYKOTE Type M-55 to oil
Gears	
Enclosed Gears	Add 5% by volume of MOLYKOTE Type M-55 to oil* For original filling and run-in, add 10% by volume of MOLYKOTE Type M-55*
Enclosed Gears Under Extremely High Loads	Add 10% by volume of MOLYKOTE Type M-55 to oil*
Open Gears	MOLYKOTE Type 165X or MOLYKOTE Type 1121
Worm Gears	Add 10% by volume of MOLYKOTE Type M-55 to oil*
Antifriction Gear Bearings (Greased)	MOLYKOTE Types BR-2 or BR-3
Spindles	
Jointed Spindle (Greased Needle Bearing)	MOLYKOTE Types BR-2 or BR-3
Pressure Spindle with Nut	Apply thin coat of MOLYKOTE Type G on threads
Adjusting Spindle with Nut	Apply thin coat of MOLYKOTE Type G on threads
Slideways	Apply a thin coat of MOLYKOTE Type G on clean surfaces
Antifriction Bearing Seats	
Removing and Press-Fitting	Apply a thin coat of MOLYKOTE Type G on cleaned seat surfaces

*During factory assembly and overhaul, all surfaces of sleeve bearings and gears subjected to high loads are pre-treated with MOLYKOTE Type G. A well adhering MOLYKOTE film is applied on the clean surfaces by thorough rubbing and subsequent dry run-in (whenever possible). Do not use in excessive quantities — use thin film lubrication.

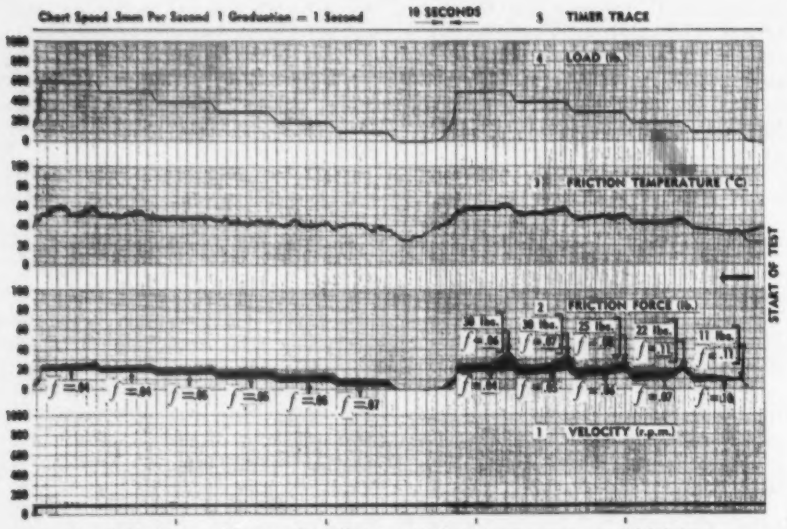


Chart Speed .5mm Per Second 1 Graduation = 1 Second
10 SECONDS
5 TIMER TRACE
4 LOAD (lb.)
3 FRICTION TEMPERATURE (°C)
2 FRICTION FORCE (lb.)
1 VELOCITY (r.p.m.)
START OF TEST

Fig. 3. Variation of frictional coefficient with load increase using solid lubricant.

How solid lubricants work

To understand how molybdenum disulfide lubricants can produce results like these, it is necessary to consider the arrangement of molybdenum and sulfur atoms in the layer lattice structure of an MoS_2 particle. In Fig. 2 a fragment composed of nineteen molecules in three layers is diagrammed. From this structure one can see: (1) how low-frictional shear occurs at the weak sulfur-sulfur bond to give great lubricity; (2) how the sulfur layer at the particle boundary can bond to any bearing metal for permanent, tight adhesion of lubricant to bearing surface; and (3) how the molybdenum layer resists penetration by the peaks (asperities) of metal grains at the bearing surface.

Most surprising is the fact that the coefficient of friction of MoS_2-coated surfaces actually decreases with load. With liquid lubricants the higher the load (especially at starting, at stopping or at low speeds) the more the lubricant is squeezed out of the bearing, the more the metal grains on one side of the bearing will abrade metal grains on the other side, and the higher will be the coefficient of friction.

In the test shown in Fig. 3 (molybdenum disulfide dry lubrication) note that the frictional coefficient actually dropped from 0.10 to 0.04 as the load increased from 100 to 500 lbs; whereas in Fig. 4 (lubrication by SAE-90 oil with 5 per cent EP additives) the frictional coefficient increased from 0.10 to 0.14 during the same load increase.

Observe also in Fig. 4 (for liquid lubrication) how much higher were the peaks of friction due to "wearing-in" immediately after each original load increase. No solid lubricant layer protected the protruding ridges of metal (the asperities) at the bearing surfaces, and they interfered, broke, or were sheared off more than with MoS_2 protection.

Available forms of MoS_2 lubricants

Molybdenum disulfide lubricants are available as powders, concentrates (pastes), greases, dispersions in oil or other liquids, and paint-on resin coatings. In the operation of a paper mill forms will be most useful. The powthe paste, grease and liquid dispersion der form is helpful mainly to the machine manufacturer — for the pretreatment of wearing parts ("plating" them with MoS_2 by rubbing with adherent powder), and for run-in operations. Resin bonded lubrication is more applicable to parts manufacturing than to machine maintenance.

What the operating mill man wants is the lubricating materials best suited for maintenance purposes — applicable by brush, grease gun or oil can.

The average paper mill operator will want: (a) one grade of MoS_2 dispersed in oil for use as an additive to the oil bath or circulating lubrication system wherever heat and extreme pressure are encountered; (b) one grade sufficiently viscous and chemically treated for steam and water resistance; (c) a supply of some heavy MoS_2 paste to use as a dope on threaded connections (piping, studs, bolts, etc.) to prevent seizing and galling and permit tighter joints with smaller torques; and (d) a bit of the powder (or the above-noted paste) to rub on slide ways and spindles as a pretreatment, and to ease the press-fitting and removal of bearing races.

With such a complement of modern solid lubricants, the paper mill and paper converter can: (a) reduce power requirements, especially for start-up; (b) keep bearings cooler; (c) greatly increase maintenance lubricating intervals; and (d) reduce, if not eliminate, dangers of costly bearing burnout.

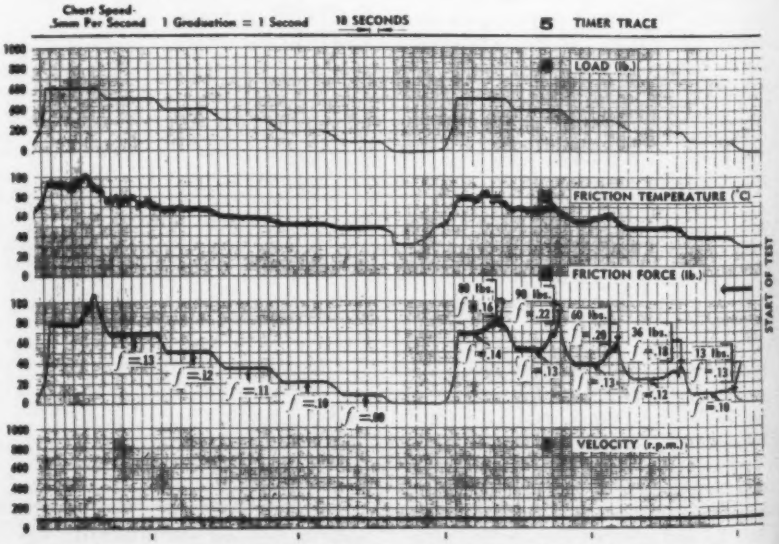


Chart Speed .5mm Per Second 1 Graduation = 1 Second
10 SECONDS
5 TIMER TRACE
4 LOAD (lb.)
3 FRICTION TEMPERATURE (°C)
2 FRICTION FORCE (lb.)
1 VELOCITY (r.p.m.)
START OF TEST

Fig. 4. Variation of frictional coefficient with load increase using liquid lubricant.

Establishing standard procedure for the operation of a maintenance control program

BERT CARSON
Maintenance Planning Supervisor
Hudson Pulp & Paper Corp.

Maintenance manpower must be used effectively so that the mill can operate at peak efficiency in the most economical manner.

MAINTENANCE Control, still in its infancy, presents an active and challenging field.

The primary purpose of the Maintenance Control department is that of effectively utilizing the maintenance manpower to maintain a mill at its peak efficiency in the most economical manner.

The maintenance controller, who heads up the department, should possess the following qualifications:

1. On-the-job experience in all phases of maintenance and construction work.
2. Fully acquainted with the work of each maintenance craft.
3. Capable of estimating manpower and material requirements for any type repair or construction job.
4. Capable of designing forms and writing policy and procedure for the operation of the department.
5. Experienced in scheduling and coordinating the work of maintenance people.
6. Possess a working knowledge of accounting, storeroom and purchasing procedures.

The maintenance crew in the average industry comprises a large per cent of the total number of employees. With the present trend toward increased automation, an even greater increase is inevitable, unless controls are installed and rigidly adhered to.

Careful studies of the maintenance crew in many industries have revealed less than a 50 per cent efficiency. The maintenance cost of the finished product is greater than ten per cent. These facts have served to spur American industry into an all-out effort to control these costs before their products are priced out of the competitive market.

Due to a scarcity of qualified personnel, some industries have systematized with people of limited experience, in an effort to control these high costs. This is always costly at first. However, in time, these people will become qualified. Any effort made to control unjustified expenditures, regardless of how ill planned, is a credit to any management. The potential savings are so great that the feeblest effort will bring some favorable results.

The rewards from a well-planned, well-organized maintenance control system will come from sources other than manpower control. In fact, savings resulting from efficient manpower control are dwarfed by those realized from increased production. The installation of an effective maintenance control system takes time. There are many factors to be considered, such as the

1. Size of the plant.
2. Quantity, condition and location of the equipment.
3. Size and locations of the raw material storage areas.
4. Plant peak production capacity.
5. Number of hours and shifts the equipment operates.
6. Normal expected life of the plant buildings and equipment.
7. Size, structure and training of the maintenance crew.
8. Contractural agreements between management and labor.
9. Budgeted expenditure allowed for maintenance.

A good maintenance control system will cover every phase of manpower and supply control. To install such a system, as previously stated, requires time. However, if a planned method is followed and the system is put into effect with care, favorable results will be realized almost immediately.

Manpower control

The quickest results will be realized if the control of manpower is made the first objective. This control should begin with the understanding that as the over-all program takes form, changes will be made in manpower control. Manpower control should start on this temporary basis through a daily planning meeting. The maintenance and operating department supervisors should meet with the maintenance controller and his scheduler to align the work.

All maintenance crafts should be coordinated in this meeting. A specific time should be established for starting each job. The trades necessary should be discussed and times set for their reporting. In way of explanation, let's schedule a hypothetical work order:

The request: Remove and completely overhaul a vertical pump.

The maintenance supervisor should first state the estimated time required to do the work from the time the pump goes down until it has been overhauled and ready for operation. The operating superintendent should name the hour he will make the pump available to maintenance.

The maintenance scheduler should request the names of the trades required. For the removal of a vertical pump, we know that an electrician must cut the power, tag the switch, and disconnect the wiring from the motor. The pipefitter must disconnect

the pipe. The millwright will remove the pump and carry it to the shop for overhaul. Any rigging necessary should be installed by the millwright prior to the time the pump goes down. The three particular crafts involved in the removal should be scheduled to report to the job at the time the equipment is promised. Once the pipe and motor have been disconnected, the electrician and pipefitter should report to another job, with instructions to return at a specified time for the reinstallation. The machine shop should be alerted for possible assistance and a machinist scheduled on fill-in work, such as parts fabrication, repairs to spare equipment, etc., in order to be available to furnish assistance if his services are needed. The millwrights should proceed with the overhaul, with instructions to notify their supervisor of any change in schedule when and if one appears obvious.

A job scheduled in this manner takes the confusion out of manpower scheduling. Once this part of the system is working smoothly, the maintenance controller should apply himself to the designing of forms and writing procedures for the over-all control system. These procedures will not only involve maintenance and engineering, but other departments which perform services to the maintenance people, such as maintenance stores, purchasing, and accounting.

The procedures necessary for effective control of the maintenance organization in most plants will be as follows:

Control Centers

For accurate costing, a plant should be divided into operating or control centers. One or more of these control centers should comprise an operating department, under the direction of a department superintendent.

The breakdown of these control centers should be consistent, in that each center should begin and end alike. Example: The equipment contained in each control center will begin with the equipment which moves the raw material from the storage bin or area, and end with the equipment used to deliver the processed product to the next storage bin or area. All production equipment between these two points will be considered to comprise the control center.

Items such as buildings, lighting, heating, telephones, etc., which are common to all departments, should be inventoried in the general control center. The cost of maintenance to the general control center should be distributed to the other centers on a prorated basis.

Equipment identification

The purpose of this procedure will be to outline the preparation and use of the identification form and to instruct in the physical inventory of the capital assets of the plant.

Under this procedure, all equipment and buildings should be inventoried, identified, and valued. It is necessary to set a minimum capital value on equipment that will be identified individually. All equipment falling under this minimum value should be inventoried in like groups by control centers.

The total capital asset value of each control center should be established. This value is a good standard for many comparisons, especially maintenance cost vs. capital asset value. The maintenance cost of a unit of equipment like the maintenance cost of an automobile should be reasonable, or the equipment like the automobile, for reasons of economy, may need a complete overhaul or replacement.

Equipment code

This procedure should provide the method for and the code to be used in identifying the capital assets of the plant, both equipment and buildings.

Permanent tags should be placed on each unit of equipment. These tags will serve to identify the equipment both for accumulation of repair cost and maintenance purposes. The maintenance personnel should be instructed to use this code and number when making repairs. The operating personnel should be instructed to use this code when making written requests for repairs or replacements. This identifying number should follow the equipment until sold or scrapped.

Maintenance classification code

This procedure should further define the type of repairs made. The writer should allow for a two digit code to identify the most prominent repairs to building and equipment. Some of these items will be:

Roof repairs.
Floor repairs.
Window repairs and replacement.
Bearing repairs and replacement.
Coupling repairs, etc.

By use of the classification code, repairs may be pin-pointed. Example: The repairs to a specific building may be in excess for one month. It is possible to define the type repairs, hence the trade, causing this excess, by sorting the detail cards on the classification code and printing.

Maintenance purchased services

This procedure should provide method and instruction for charging the costs of services or equipment, furnished by outside vendors or contractors, to include:

1. Repairs or alterations to existing equipment.
2. New work and capital installations.
3. Rental of service equipment—such as welding machines, air compressors, power generating equipment, etc.
4. Services of outside engineers and consultants.

Maintenance time report

This procedure should instruct the maintenance department hourly employees in the proper method of reporting daily manhours.

The form should be designed for use on automatic data processing equipment, and should provide for reporting time by individual piece of equipment or job order.

Job estimate

This procedure should instruct in the method to be used in estimating manpower requirements, labor hours, and supplies. Work order cost limits should be established for securing management approvals before the work is done. Properly policed, this part of the control system will keep top management advised of anticipated changes in process and major expenditures for repairs and alterations.

The written job order

This procedure should outline the method and instructions for the preparation and use of the written job order.

The job order is the source document for all maintenance labor and supply charges. The information for time reports, supplies, purchased services, and any other expense is taken from this source. Therefore, it is necessary that all information be correct and legible for accurate costing and reporting. The work requested should be as descriptive and accurate as the writer can make it, realizing that the accuracy of this statement largely determines the effectiveness with which maintenance can serve. The estimating, the trades needed, and the preparations are based on this statement.

The form should provide space for denoting repairs made other than those covered in the original request. This statement proves to be valuable in many cases for explaining an unfavorable variance from the original estimate.

There are many variations in the written job order policy. However, one thing should hold true in all cases: the department superintendent

(Continued on page 181)

Flambeau Paper Division checks wood chipper efficiency

L. M. GIBSON
Sulfite Superintendent
Flambeau Division
Kansas City Star Co.

The use of the automatic sawdust weigher and recorder has resulted in remarkable savings of chipper knives and knife changes as well as improvement of chipper performance.

THE Northern Lakes Forest Products Co. of Park Falls, Wis., furnished the Kansas City Star Co.'s Flambeau Paper Division a Sawdust Weigher and Recorder in November 1959. The unit was put into service on November 13. As a result, the amount of wood lost as sawdust has been steadily decreased until now a full 1 per cent of the daily wood use is being saved. If this could be done nationally, it would be a fine extension of the available pulp wood, and a great savings to the mills.

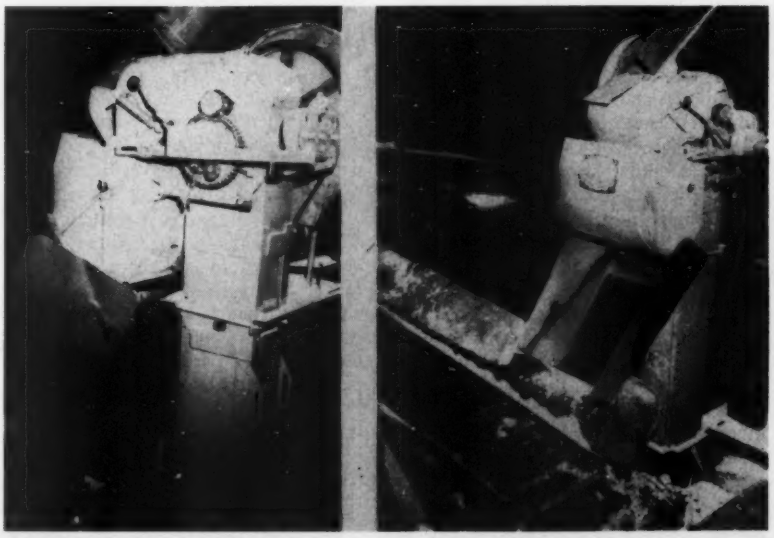
The chippers used by pulp mills are not glorified wood hogs, they are precision machines. To get the best results, they must have precision adjustments and precision-ground knives. The only hour-to-hour check of a chipper operation is the amount of sawdust produced. A low sawdust rate means good chips for good pulping, less power usage, longer chipper knife life, more cords of wood per set of knives, fewer knife changes, and less wood per ton of pulp produced.

At Flambeau, the scale on the Sawdust Weigher and Recorder was set for 10 lb. per hopper load. The Recorder turns up one digit on a 999 counter for each two dumps of the hopper which represents 20 lb. of sawdust going to the boiler house for fuel.

The scale is very accurate. The entire mechanism is very simple. The starting power to dump the hopper is provided by a spring. By the time the spring power is exhausted, the ¼-hp motor takes over to complete the dumping action and cock the spring tension for the next trip. This spring action relieves the gears of all dead load starting. The entire action is completed in one second by one revolution of a 6-in. gear. A 1½-in. pinion on the drive shaft runs continuously and, on each hopper dump, works only about one half turn on the 6-in. gear to cock the spring. It is assisted in this by the weight of the dump gate returning to the closed position. From indications after five months of operation, the unit should last for millions of dumps. It has not even worn the paint off the 6-in. gear as yet. The main wearing action should be due to the fatiguing of the spring which can be replaced for $1.00 and in 5 min. of time.

To handle the sawdust from 250 cords of wood per day, the unit dumps on the average of once every 40 sec. It would be possible for it to load and dump every 2 sec. or less. It would also be possible to connect two units on one shaft with one motor drive. A 1/3-hp motor would handle the job.

(Continued on page 181)



Views of the automatic sawdust weigher and recorder installed at the Flambeau Paper Division.

Adhesives in the paper industry

PART VIII — Adhesive applications in the paper industry

THERE ARE literally hundreds of applications for adhesives in the paper and packaging industries, many of which are shrouded by secret technology and "know-how". Because the industry is one in which much of the technology is the formulators' and the users' stocks in trade, it is possible to discuss applications only in the broadest of terms. This portion of the article will attempt to outline some of the general areas in which adhesives are used in the paper and packaging industries.

It goes without saying that the design, the quality, and the actual utility of packages have been improved markedly since World War II because of advances made in the adhesives industry. When one combines with these the advances which have been made in packaging materials, one can readily see why the packaging industry has demonstrated such healthy growth.

As the above discussion has indicated, the classic adhesives for the packaging industry include starch, dextrin, animal glue, casein, fish glue, blood albumin, soybean protein, sodium silicate and possibly some of the gums. To these have been added the cellulose-based adhesives, the rubber adhesives, and many of the synthetic resin adhesives.

The important advantages of the synthetic resin adhesives are better barrier properties, such as: better resistance to moisture vapor transmission and to water itself; better high temperature resistance; better resistance to a variety of chemicals and solvents; resistance to such troublesome factors as molds and fungi; and more uniform quality. On the other hand, the older adhesives, most of which are based on natural products, have the advantages of lower cost, greater ease of application and easier cleaning of machines. The synthetic adhesives, however, lead to more rapid operation which, at least in part, compensates for their high cost.

Some of the general areas where packaging adhesives have made positive advances have been discussed by Gabriel[10]. An important advance for the packaging industry is an adhesive which makes possible the cementing of aluminum foil to itself for the design of packages with a high degree of barrier properties. These same types of adhesives can, of course, be used as laminating adhesives to laminate the aluminum foil to a variety of cellulosic materials.

Adhesives which make possible vacuum metalizing of plastic films and cellulosic substrates are of interest. Even though such vacuum metalized assemblies have been used largely for decorative purposes, they offer promise in various packaging applications.

Filament tapes, which can actually substitute for metal bands in large packages are dependent, in part, upon the adhesive which holds the filament to the substrate, making possible the achievement of very high strengths.

The palletizing of bags in order to insure easier, safer and more economical shipment is now a common operation. Important here, is the adhesive which forms an interlayer between the bags in order to prevent slipping.

The advantages of synthetic resin adhesives is demonstrated in a new development in which a sift-proof carton is made without the use of either overwraps or innerwraps. This is possible supposedly because of the use of a synthetic resinous thermoplastic adhesive which sets very rapidly and which is applied to a special type of end seal construction. The adhesive seeps into all of the cracks and folds and sets up rapidly as it cools, thus creating a sift-proof closure. This eliminates the need for double packaging and obviously saves cost.

The trend in the packaging industry to use paper and fiberboard containers in place of metal and wood containers has made necessary the fabrication of entirely new types of packages based on cellulosic materials. Multiwall paper sacks, fiber, and corrugated containers are among the most popular means for replacing the more expensive and the more conventional types of drums. These have the advantage of lightweight and the possibility for easier handling, lower cost and more compact storage. The adhesives that go into them must be waterproof and moisture-vapor proof, and must be able to withstand impact and rough handling. In order to improve the barrier properties of such containers, plastic films such as polyethylene or metal foils are laminated onto the board or used as liners in the container. Adhesives, of course, are important in the laminating or lining operation. The sacks or bags which result are adequate for heavy duty of the type necessary for the shipment of chemicals, fertilizers, seeds, drugs, and a variety of other materials to various parts of the world where conditions vary from extreme cold to extreme heat, with all degrees of humidity thrown in for good measure.

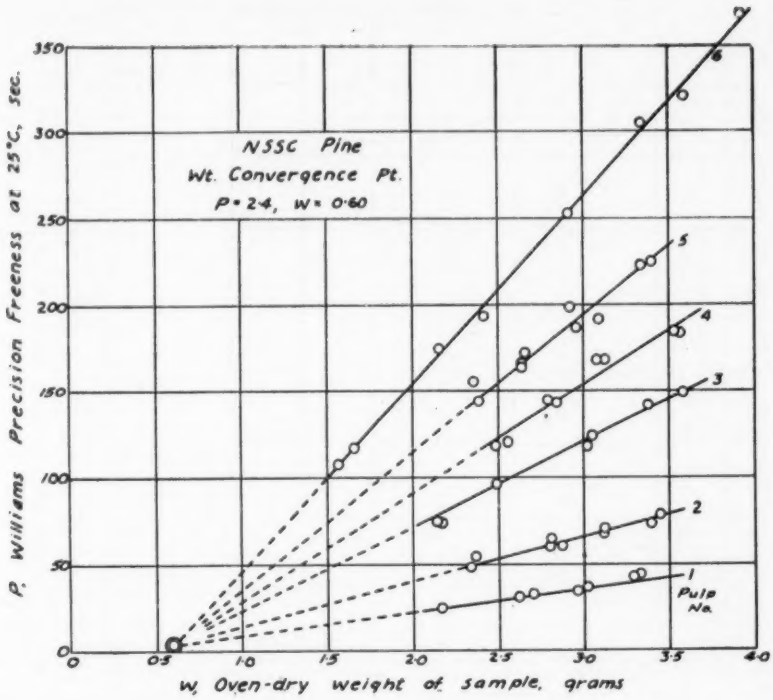
Where humidity is a problem and where the material which is packaged tends to be hygroscopic, asphalt is commonly used as a moisture barrier in laminating adhesives. Because of its thermoplastic nature, however, asphalt has certain drawbacks which are being overcome by formulation. Also, other resins are being used, such as rubber adhesives and some of the rubber derivatives discussed above. Where very high moisture impermeability is desired, polyethylene may be laminated to paper. Since this is frequently done by heat sealing the polyethylene to the paper, the polyethylene may

(Continued on page 180)

The freeness of neutral sulfite semichemical pine pulp

D. S. DAVIS

Department of Pulp and Paper Technology
University of Alabama



Effect of sample weight and temperature

A GENERAL procedure similar to that previously described (1) for sulfite, groundwood, and bookstocks was employed in studying the effect of sample weight and temperature on the freeness of neutral sulfite semichemical pine pulp as measured by means of the electrically-timed Williams Precision freeness tester. Pine chips, after a neutral sulfite cook, were passed through a Bauer refiner; the resulting pulp was screened and beaten for various lengths of time in accordance with a procedure similar to that of TAPPI Standard T-200-m-45.

Effect of sample weight

Six such stocks were diluted to consistencies of about 0.55 per cent and freeness samples containing 2.10 to 3.90 grams of oven-dry pulp in intervals of 0.30 to 0.40 grams were prepared. Freeness tests were made at 25.0° ± 0.2° C. In each case, over this range, plots of freeness (P seconds) versus sample weight (w grams of oven-dry pulp) were linear in accordance with the equation

$$P = a + b\,w \qquad (1)$$

and were, roughly, convergent. Substitution of the data of Fig. 1 in the general equation yielded six equations; these solved simultaneously two at a time (except for Pulp 4 with Pulp 5) yielded 14 of coordinates for the weight convergence point. Averages of these coordinates determined the weight convergence point (P = 2.4 sec., w = 0.60 gram) for neutral sulfite semi-chemical pine pulp. Each line in Fig. 1 connects the weight convergence point with the freeness of the particular pulp at the standard sample weight of 3.00 grams of oven-dry pulp as computed by means of the values of a and b given in Table 1.

Effect of temperature

To study the effect of temperature on the freeness of neutral sulfite semichemical pine pulp, portions of four of the six stocks were used. Samples containing the equivalents of 2.90 to 3.10 grams of oven-dry pulp (weighed to 0.01 gram) were employed and freeness tests at temperatures of 18° to 34° C. in steps of about 3° C. were made. All freeness values were corrected to the standard sample weight of 3.00 grams of oven-dry pulp through use of the weight convergence point. In each case, over this range, plots of freeness (P seconds) versus temperature (t, in degrees Centigrade) were linear in accordance with the equation

$$P = m + n\,t \qquad (2)$$

and were roughly convergent. Substitution of the data of Fig. 2 in this equation yielded four equations; these solved simultaneously two at a time (except for Pulp 4 with Pulp 5) yielded five pairs of coordinates for the temperature convergence point. Averages of these coordinates determined the temperature convergence point (P = −11.5 sec., t = 80.2° C.) for neutral sulfite semichemical pine pulp. In Fig. 2 each line connects the temperature convergence point with the freeness of the particular pulp at the standard temperature of 25° C., as computed by means of the values of m and n given in Table I.

Fig. 3 is a chart for converting freeness values at sample weights of 2.60

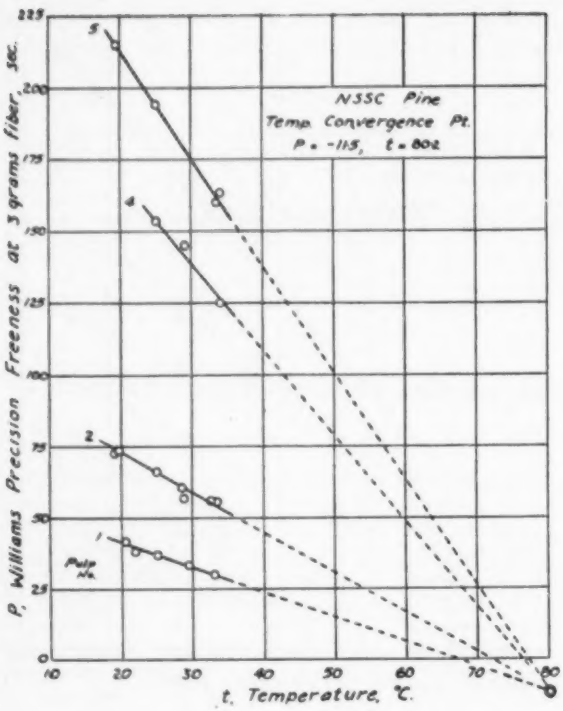


Fig. 2. (Left) Temperature convergence point and freeness

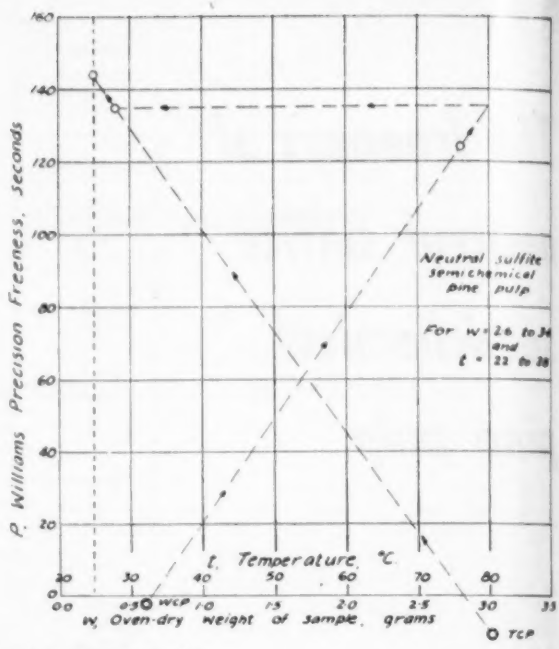

P, Williams Precision Freeness, seconds
Neutral sulfite semichemical pine pulp
For w = 2.6 to 3.4 and t = 22 to 28
t, Temperature, °C.
W, Oven-dry Weight of sample, grams
WCP
TCP

Fig. 3. Conversion chart

TABLE I — VALUES OF CONSTANTS IN EQUATIONS 1 AND 2

Pulp	a	b	m	n
1	− 7.30	14.75	57.38	−0.820
2	− 5.75	23.97	101.58	−1.437
3	−34.74	51.34	———	———
4	−49.45	67.69	225.2	−2.862
5	−29.52	74.50	287.2	−3.723
6	−67.40	110.07	———	———

to 3.40 grams of oven-dry pulp and temperatures of 22° to 28° C. to the standard sample weight and temperature, 3.00 grams of oven-dry pulp and 25° C., respectively. Use of the chart is illustrated as follows: Given a freeness of neutral sulfite semichemical pine pulp as 124 seconds at a sample weight of 2.80 grams of oven-dry pulp and a temperature of 28° C., what is the freeness at standard conditions? Connect the point P = 124 sec. and w = 2.80 grams and the weight convergence point (WCP, at P = 2.4 sec., w = 0.60 gram) with a straight line and mark the intersection with the 3-gram line. Proceed horizontally to the line for 28° C.; connect this point with the temperature convergence point (TCP, at P = − 11.5 sec., t = 80.2° C. with a straight line and note the intersection with the 25° — line at 144 sec., the desired corrected freeness. Fig. 3, of course, is diagrammatic; one should construct his own chart for his own ranges on a large sheet of plotting paper.

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Adhesives

(Continued from page 178)

be considered as an adhesive type of coating. Hot calendering is a successful means for carrying out this heat-sealing operation.

The properties of paper itself can be improved by the addition of adhesive materials during paper manufacture. Mention has already been made of the addition of urea and melamine formaldehyde resins to paper pulp in order to obtain high wet strength, particularly in kraft paper.

The more conventional applications for adhesives in the paper and packaging industries are for labeling, pressure-sensitive tapes, spot sealing, heat seal applications of various bookbinding, paper impregnation, and for use in gummed and specialty tapes.

Summary

This series of articles has presented some of the modern thinking on the theory of adhesion together with a classification of adhesive materials. Following this classification, the natural and synthetic building blocks for adhesives have been discussed, primarily from a chemical point of view. In the course of these discussions, an attempt has been made to show how these adhesives fit into the paper and packaging industries.

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Flambeau's sawdust weigher

(Continued from page 177)

The advantages gained by using the Sawdust Scale and Recorder for five months is shown by the Flambeau Paper Division report which follows.

New sawdust scale report

The new Sawdust Scale and Recorder was put in operation on November 12, 1959. The cost was $300.-00 installed.

During the first eight days of operation, four sets of chipper knives were used for each 16 hr. of operation. Since that time two sets of knives have been used for each 16 hr.

The quality of chips has materially increased while the amount of trash going to the rechipper has materially decreased.

The quality of paper knife grinding has improved as a result of applying the lessons learned in the grinding of chipper knives.

The table below indicates a constant increase in the amount of wood saved by the better grinding of chipper knives. The use of this sawdust weigher and recorder is returning more than its cost once per week.

Week Ending	Cords Wood	Lbs. Sawdust Per Cord	Total Cords Sawdust Produced Per Day	% Sawdust
1st 4 days	1,006	74.8	5.62	2.19
2nd 4 days	1,009.37	67.1	4.97	1.975
11/21/59	1,475.6	70.0	5.03	2.06
12/5/59	1,438.9	63.5	4.46	1.82
12/12/59	1,417.24	64.75	4.42	1.87
12/19/59	1,471.87	61.82	4.46	1.82
12/26/59	1,102.26	60.9	4.55	1.78
1/2/60	1,310.29	61.0	4.55	1.81
1/9/60	1,536.72	67.5	5.12	2.00
1/16/60	1,478.40	59.8	4.38	1.77
1/23/60	1,509.36	63.9	4.80	1.91
1/30/60	1,459.38	66.0	4.70	1.94
2/6/60	1,514.19	60.8	4.53	1.80
2/14/60	1,496.00	64.8	4.70	1.90
2/20/60	1,455.58	59.6	4.26	1.75
2/27/60	1,493.82	59.5	4.45	1.74
3/5/60	1,464.70	60.1	4.32	1.77
3/12/60	1,409.12	57.0	3.93	1.67
3/19/60	1,423.15	50.0	3.45	1.47
3/26/60	1,494.24	52.51	4.00	1.61
4/2/60	1,478.29	44.6	3.28	1.32
4/9/60	1,433.26	50.25	3.53	1.48
4/16/60	1,457.85	42.8	3.10	1.26
4/23/60	1,457.55	39.8	2.84	1.17
4/30/60	1,518.87	40.6	3.05	1.19

Flambeau reports that this saving has been made primarily from changes made for quality of chipper knife grinding. Without the Sawdust Scale and Recorder, supervision has no accurate means of judging the efficiency of the chipping operation. The high cost of machinery, labor and wood makes this savings in knives, knife changes and sawdust important in every mill operation. Seldom does so small an investment have the possibility of so great a return.

Maintenance control

(Continued from page 176)

who will be charged with the cost should be aware of what that cost may be before the job is started. He should also have a copy of every active job order for work pending in his department. The department superintendent is the most valuable advisor to the maintenance scheduler in any system.

The standing job order

This procedure should provide the instructions and spell out the limitations, for use of the standing job order, in charging labor hours and supplies for minor or routine repairs.

The purpose of this procedure is to eliminate the so called delay caused by the written job order procedure. In writing this procedure, caution should be exercised to prevent laxity in limits and rules. The standing job order, being the course of least resistance, is most always abused. Laxity in the preparation or policing of this procedure can very well encourage the hiding of inefficiencies, and saddle the maintenance controller and department superintendents with costs which will be hard, if not impossible, to explain.

The procedure should describe:

1. All job orders in this category.
2. Establish manhour and supply limits for each.

Fabrication of spare parts

This procedure should provide instructions for handling labor and supply cost in fabrication of spare machine or equipment parts by maintenance people. Since these parts are worn out in the process and may be purchased on the open market, they should be classified as operating parts and not charged against the maintenance budget.

The procedure should instruct the storeroom on receiving these parts and giving maintenance credit for the vendor's price.

Accounting should be instructed to debit the cost of fabrication and credit the purchase price to the maintenance department by item. Thus, the maintenance controller will be provided with the information necessary to determine the parts more economical to purchase on the open market or fabricate in the plant.

The operating department should be charged with the vendor's price when withdrawing from the storeroom.

Maintenance overtime authorization

The purpose of this procedure should be two-fold:

1. To aid maintenance in the control of overtime hours.
2. Provide the operating superintendent with facts necessary to substantiate his overtime costs.

The form should provide for the carrying out of this function.

This form should carry the approval of no less personage than the department superintendent.

The costs should be accumulated and posted to the form no later than one day after the fact. The department superintendent should receive his copy at that time.

Daily maintenance work schedule

This procedure should describe the method and instructions for scheduling from 15 to 25 per cent of the maintenance crew on a daily basis. These people should be scheduled on repair jobs or parts fabrication in or around the maintenance shops. This is

(Continued on page 183)

The role of the "Double-Seal" ball valve in the pulp and paper industry

The valve has solved many operational problems and can be classified as an outstanding piece of equipment in a paper mill.

THE DEVELOPMENT of the "DOUBLE-SEAL" ball valve by Howard G. Freeman in 1954 has had the double effect of creating a new and rapidly growing manufacturing company, the Jamesbury Corp., and, at the same time, providing the pulp and paper industry with a versatile valve that finds applications in most of the industry's operations. A measure of Jamesbury's remarkable growth is indicated by the company's sales chart which shows increases from the 1955 sales valued at $35,400 to $821,000 in 1957, $1,345,700 in 1958, $2,140,974 in 1959 and an estimated $4,500,000 in 1960.

The Jamesbury "DOUBLE-SEAL" ball valve, according to the manufacturer, offers advantages obtainable in no other type of valve. Disadvantages of other types of valves are eliminated, such as high turbulence of the globe, leakage tendencies of the gate and frequent maintenance and lubrication of the plug cock. At the same time, the "DOUBLE-SEAL" valve incorporates the best features of each: leakproof performance, full flow and quarter turn operation.

Design characteristics

The double-seal design affects complete shut-off on both sealing surfaces of the ball. Because of this sealing action, the valve will hold pressure or vacuum equally well in either direction. The valve uses no internal springs, and the wiping action of the ball on the seats during valve operation removes abrasive particles from all sealing surfaces. The valves are standard in both design and dimensions. All working parts are interchangeable according to media requirements, and valves may be changed in the line without altering piping lengths.

The ball valve is designed to incorporate full flow characteristics. As a rule of thumb, pressure drop through the Jamesbury valve will approximate that of a standard 90° elbow in the same size. Eight- and ten-in. Jamesbury valves have a C_v coefficient of 2000 and 3400 respectively, making them especially suitable for such applications as digester blow valves, where rapid removal of digested chips is an important factor.

Jamesbury valves are available in screwed sizes ¼ in. to 3 in. and in flanged sizes ½ in. to 10 in. Standard constructional materials are naval bronze, carbon steel, ductile iron, aluminum, 303 stainless steel, 316 stainless steel, alloy 20 stainless steel, and polyvinylchloride. Monel and Hastelloy can also be supplied on a special basis. Seating materials are stocked in Teflon, Nylon, Neoprene, Hypalon and natural rubber.

For remote control requirements, pneumatic, hydraulic and electric motor operators are available. These may be mounted on the valves furnished as complete factory pre-tested units for ease of customer installation. Pneumatic and hydraulic operators can be adapted to all Jamesbury valves. Electric motor operators are currently furnished only for valves in ¼ in. to 4 in. size.

Jamesbury valves are suitable for pressure applications ranging from ultra-high vacuum to 6000 psi. Temperature limitations are minus 420°F to plus 450° F.

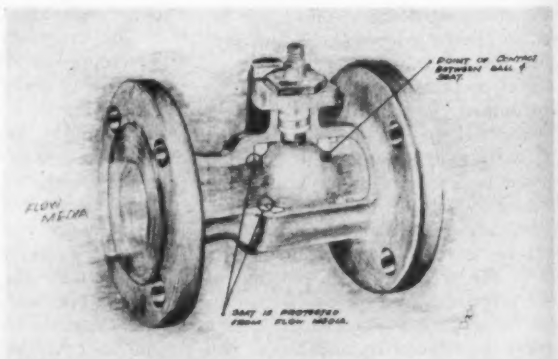
Fail-safe spring return operators are available for special applications.

Versatility of Application

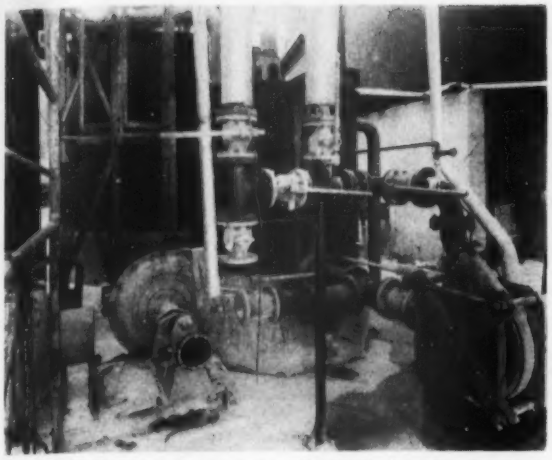
High pressure valves

Valves for high-pressure (3000 to 4000 psi) applications are manufactured in the ¼-in to 2-in. pipe and tubing thread sizes, while flange-type, high-pressure valves are made in the 2-in., 3-in. and 4-in. pipe sizes. Of interest to note is that a 6000-psi valve is now under consideration in the ¼-in. to 1½-in. sizes.

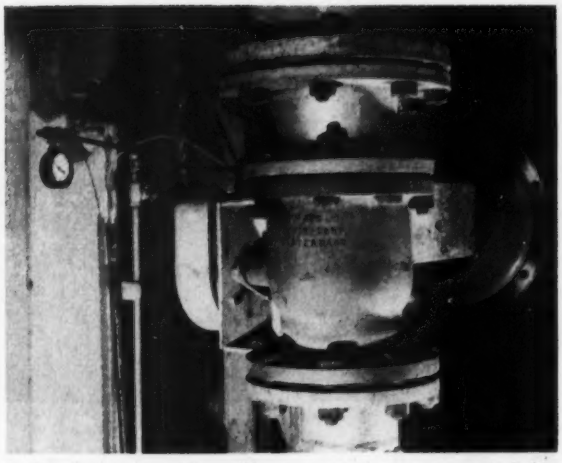
High-pressure valves are made in a



Cutaway view of the Jamesbury "Double-Seal" ball valve.



A typical installation view of the "Double-Seal" ball valve in an Eastern mill.



A 6-in. ball valve with positioner mounted in an 8-in. stock line for stock metering service.

unit body construction which renders the valves virtually leak-proof and indestructible in service.

Vacuum valves

Valves for use in vacuum systems are constructed of non-porous materials which, in addition, do not contain impurities that are liable to vaporization at low pressures.

The valves for high vacuum service are designed to provide a complete seal from in-leakage by special stem and stem seal construction. High-vacuum valves are available in all sizes. They are designed for vacuum applications as low as 10^{-5}mm Hg absolute pressure. High-vacuum valve seats and seals are made of Neoprene or Teflon as specified. The service life of high-vacuum valves is estimated at more than 20,000 cycles with no loss in effectiveness.

Applications in the paper mill

Highly satisfactory service of the "DOUBLE-SEAL" ball valve has been experienced by many paper mills. Some of the varied applications include sampling, liquor, alum and stock lines. Also handled are media such as fuel oil, starch sizing, air, coloring, coating, caustic and bleaching chemicals. Virtually every section of a mill has numerous possible applications. For the most part, success has come in the way of reduced maintenance both from the standpoint of longer service as well as the fact that no lubrication is required. Its design tends to reduce any tendency to stick which, combined with the quarter-turn feature, has the advantage of being easy to operate. It does not leak within prescribed operating conditions after long and continuous cycling which has obvious advantages. Jamesbury valves are being used on gases, liquids and semi-solids with apparent equal success.

Considerable interest has been expressed in using the valve for stock metering applications. One modern plant in the Northwest has experimented with a 3-in. stainless steel valve used to handle reclaimed 4 to 5 per cent pulp stock. In this service, the stock still contains some of the black liquor which is used for cooking. The valve is controlled by a conventional positioner and is in continuous throttling service.

Prior to installing the Jamesbury valve, it had been necessary to remove, clean, repair or replace the unit periodically. The stock would dewater due to constant leakage.

Jamesbury Corp. has a ball valve in the development stage for use in metering services through proportional control, and expects to be able to furnish valves with this feature when sufficient data and operating characteristics are available. Tremendous advantages are evident in using a valve that completely prevents plugging, dewatering of stock, provides a positive shut-off and maintains good metering characteristics.

To quote a superintendent of a leading paper manufacturer, "The valve has solved many operational problems and can be classified as an outstanding piece of equipment in a paper mill".

Maintenance control

(continued from page 181)

done to provide manpower on a virtual stand-by basis for emergency breakdowns. The per cent to schedule will vary according to the emergency breakdowns.

This procedure should cover the instructions for:

1. Conducting the daily scheduling meeting.
2. The management personnel requested to attend.
3. The mailing list to receive copies of the daily maintenance schedule.

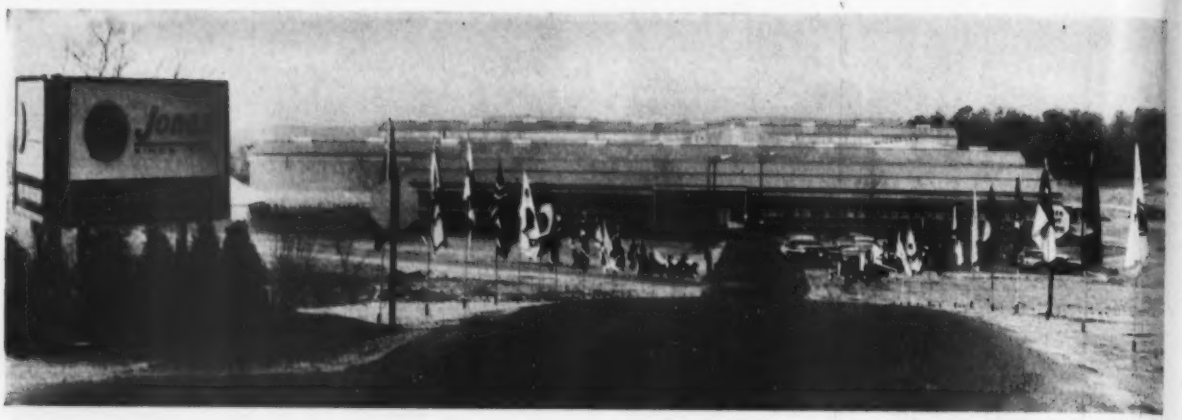
Maintenance weekly work schedule

This procedure should outline the preparation for and instruct in the method of scheduling from 75 to 85 per cent of the maintenance crew one week in advance.

The purpose of the weekly schedule is to acquaint the department superintendents of work to be performed in their respective departments in advance. This is done to avoid the confusion that will arise when attempting to schedule the entire maintenance crew on a daily basis.

The procedure should instruct the department superintendent to review the schedule upon receipt, check each job scheduled in his department and the time and day planned. If for any reason the equipment will not be available, the superintendent should notify the maintenance scheduler, who will cancel the job and reschedule the people assigned on a daily basis.

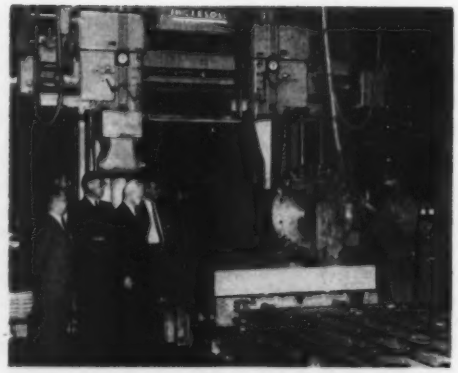
(to be continued next month.)



E. D. Jones Corporation opens new multi-million-dollar plant

Kickoff activity began Thursday evening when 168 paper mill executives enjoyed an informal buffet dinner.

Guests arrived by bus to the Dalton plant to begin a conducted tour of the new multi-million-dollar plant.



Watching a finishing operation on a Jones Adapta-Plug done by an Ingersoll Planner Mill are, left to right: E. D. Jones, executive vice president of Jones; A. A. Neese, treasurer of Beloit; H. Moore, president of Beloit; E. H. Neese, chairman of the board of Beloit; and S. Harley Jones, president of Jones.

ON MAY 5 and 6, E. D. Jones Corp. officially opened the doors to the company's new multi-million-dollar plant in Dalton, Mass., to welcome over 168 top executives of the pulp and paper industry.

The affair began Thursday afternoon in Pittsfield, with the arrival of guests representing 19 states. In the evening, the guests attended a cocktail party and informal buffet dinner where S. Harley Jones, president of E. D. Jones, welcomed them to the celebration with a short talk outlining the activities planned for them on the following day.

After an early breakfast on Friday morning, the group boarded special busses for a short trip to the company's new Dalton plant. On arrival at the plant, the group began the first phase of a conducted tour — the administration offices. When completing the office tour, the guests were guided through the factory area.

At the end of the tour, the visitors were served cocktails in the plant's modern cafeteria and then ushered outside the building where they were served a formal luncheon in a large and festive tent. During this luncheon, C. H. Vickery, vice president-sales of E. D. Jones, introduced the members of the Beloit-JONES family to the guests.

S. Harley Jones, in speaking to the group at this luncheon, gave a brief history of the company's growth. With reference to the future, Jones stated: "This plant is built for the future. We have sufficient land on this site to expand the plant to four times

Photos left and right show paper mill executives viewing factory area during conducted tour of the Dalton plant.

its present size. The plant is designed in such a way that expansion can be accomplished quickly at minimum cost. This, to us, is important, for no matter how good our basic products —our reputation and future depend upon giving you, at all times, prompt and efficient service. To this end we are dedicated. We want you to think of the plant you have seen today, in effect, as yours. Its only purpose is to best serve your needs; our success can only be measured by how well this is done. We are now ready to serve your every need, no matter how large your demand".

E. H. Neese, chairman of the board of Beloit Iron Works, expressed his confidence and faith in the growing success of the Jones Corp. and the natural tie between Jones and Beloit.

Another highlight during the luncheon was the presentation of the Gold Jordan Award. This award was presented by C. H. Vickery to Paul Sievert, paper manufacturing consular of the Southern Kraft Division for International Paper Co. Sievert is the first recipient of this award. The Jones Gold Jordan Award is given in recognition of outstanding contributions to the pulp and stock preparation field by persons in the area of paper manufacture.

About the new plant

The new Dalton plant is located on an 82-acre site, straddling the towns of Dalton, Mass., and Pittsfield, Mass.

Although the overall space at present is 200,000 sq. ft., the plant is expandable to 640,000 sq. ft. The office section covers approximately 30,000 sq. ft. Both the office and the factory area is laid out to provide a steady production flow from the time the raw material and rough machine parts arrive. Immediately off the office section is the receiving and storage base. A rail line and two truck docks are on the south of this bay. A spur track from the Boston-Albany line leads into the huge receiving end, shipping bays of the new plant. These two bays run north and south and are joined by three manufacturing bays.

The three manufacturing bays empty into an erection or assembly shop. At this end of the bay is housed another rail head and two hydraulic truck docks plus a paint spraying booth. Adjoining the erection shop, is the Jordan wood shop where wood fillings for Jordans are made and where finished machines are graded prior to shipment.

Throughout the shop, general foreman offices and shop foremen offices are located centrally in each production bay.

Laboratory also expanded

The expansion and modernization of the company's laboratory is another important phase of the overall expansion. The lab will be moved into new quarters just west of the new plant.

Occupying 11,000 sq. ft., the lab has been designed for developing, testing and demonstration production scale pulp and paper machinery. Kenton J. Brown, director of research, states: "The Jones research program has been expanded to include chemical and semi-chemical as well as mechanical pulping investigations in an effort to develop a complete line of pulp mill machinery".

From a tiny wooden shop

E. D. Jones traces its history through three generations of one family back 115 years ago when Edward D. G. Jones started out in East Lee in a tiny wooden shop, making water wheels and other power transmission wheels for the paper mills in the Lee area.

With the rapid growth of paper mills in this area, the company was soon called upon to help set up many of the new mills and do maintenance work on machinery in these mills. This led to the manufacture of paper mill machinery.

E. D. Jones has helped set many "firsts" in the paper industry. It was on the Jones equipment in a mill constructed by one of the founding company's crews that newsprint from wood pulp was first manufactured in America.

In 1867, the firm moved to Pittsfield and continued to grow and expand, until its more recent move to Dalton.

E. D. Jones was purchased by Beloit Iron Works of Beloit, Wis., in 1958—a 102-year-old firm. As a wholly owned subsidiary of Beloit, Jones is a member of a group that comprises the largest, exclusive manufacturers of the paper-making machinery in the world.

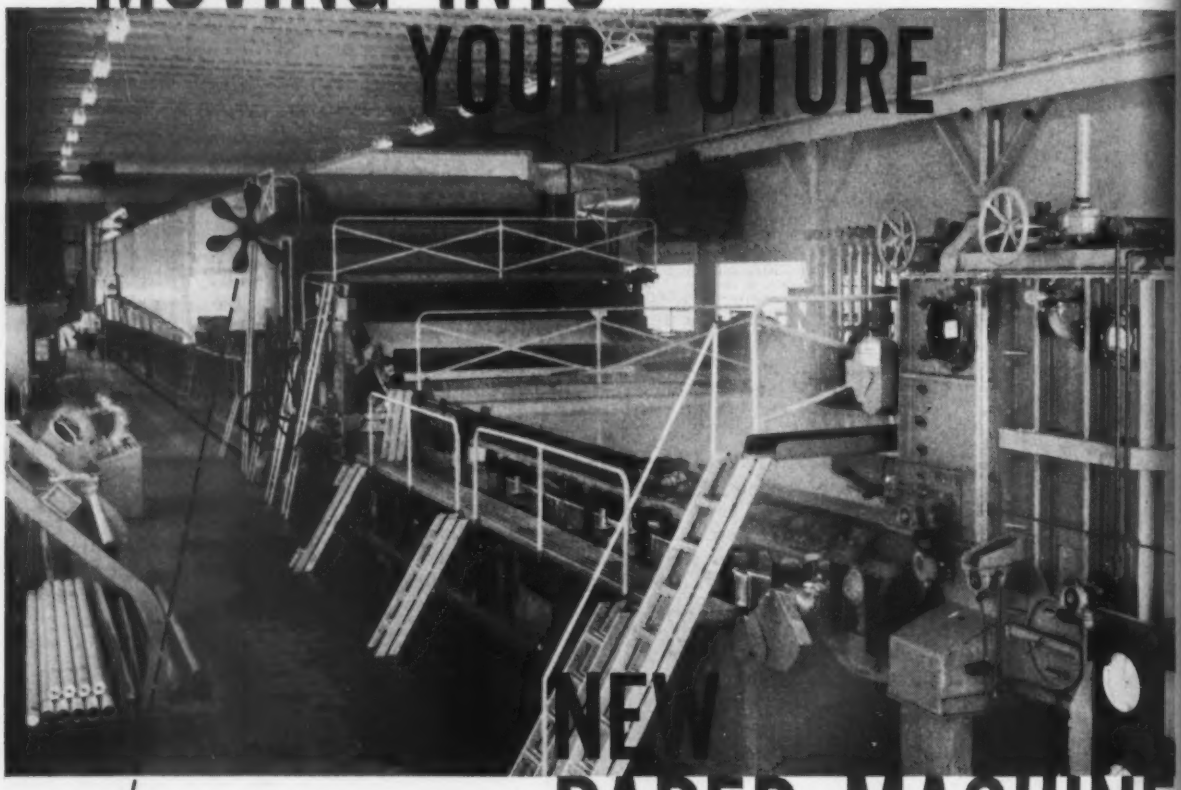
Harry Moore
President
Beloit Iron Works

E. H. Neese
Chairman of Board
Beloit Iron Works

S. Harley Jones
President
E. D. Jones Corp.

C. H. Vickery (right) presenting the E. D. Jones Gold Jordan Award to Paul J. Sievert (left).

MOVING INTO YOUR FUTURE



NEW PAPER MACHINE

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NEW 160" NO. 3 MACHINE

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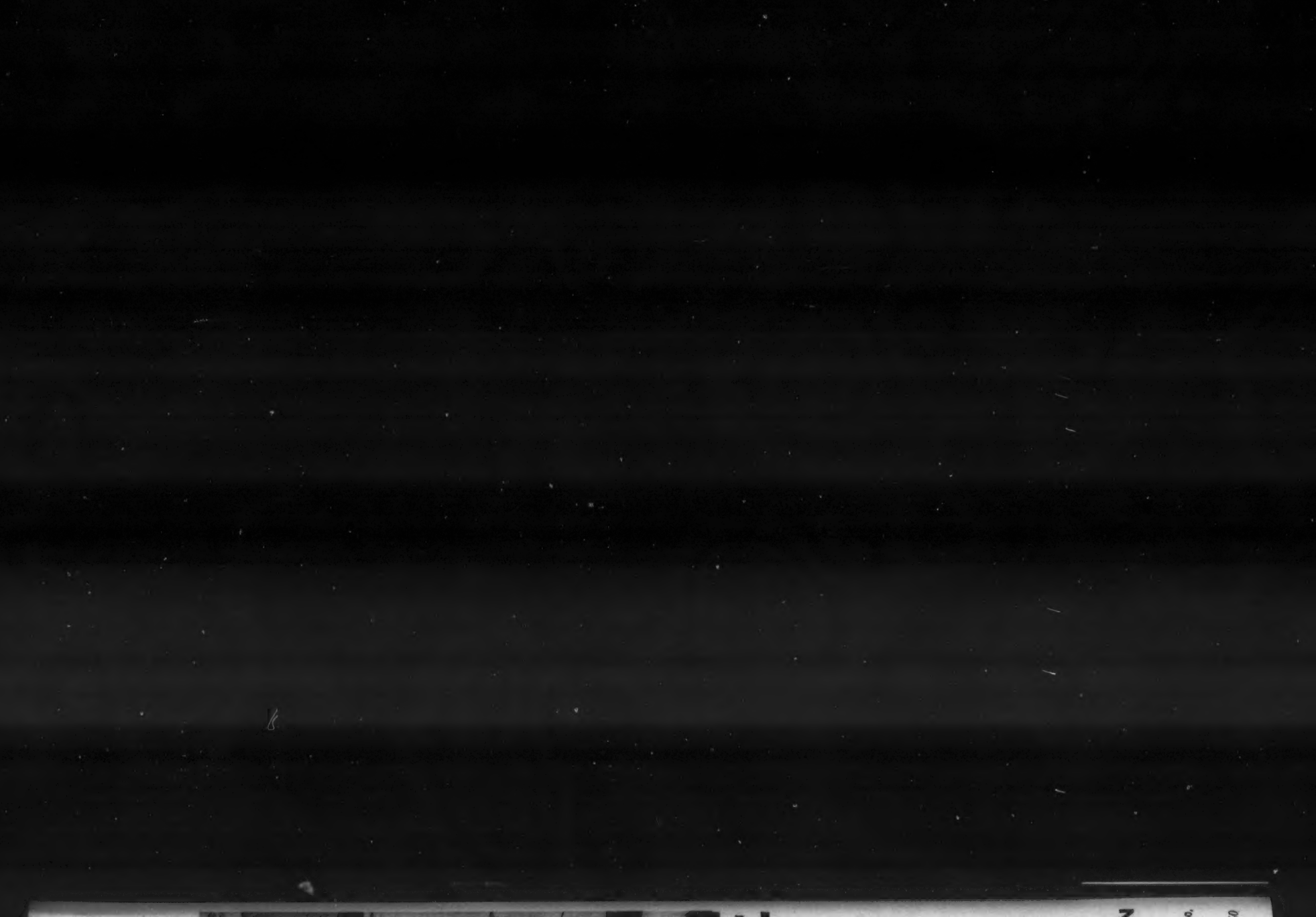

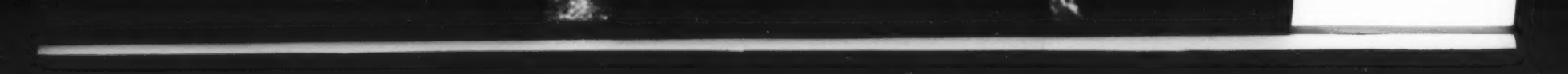

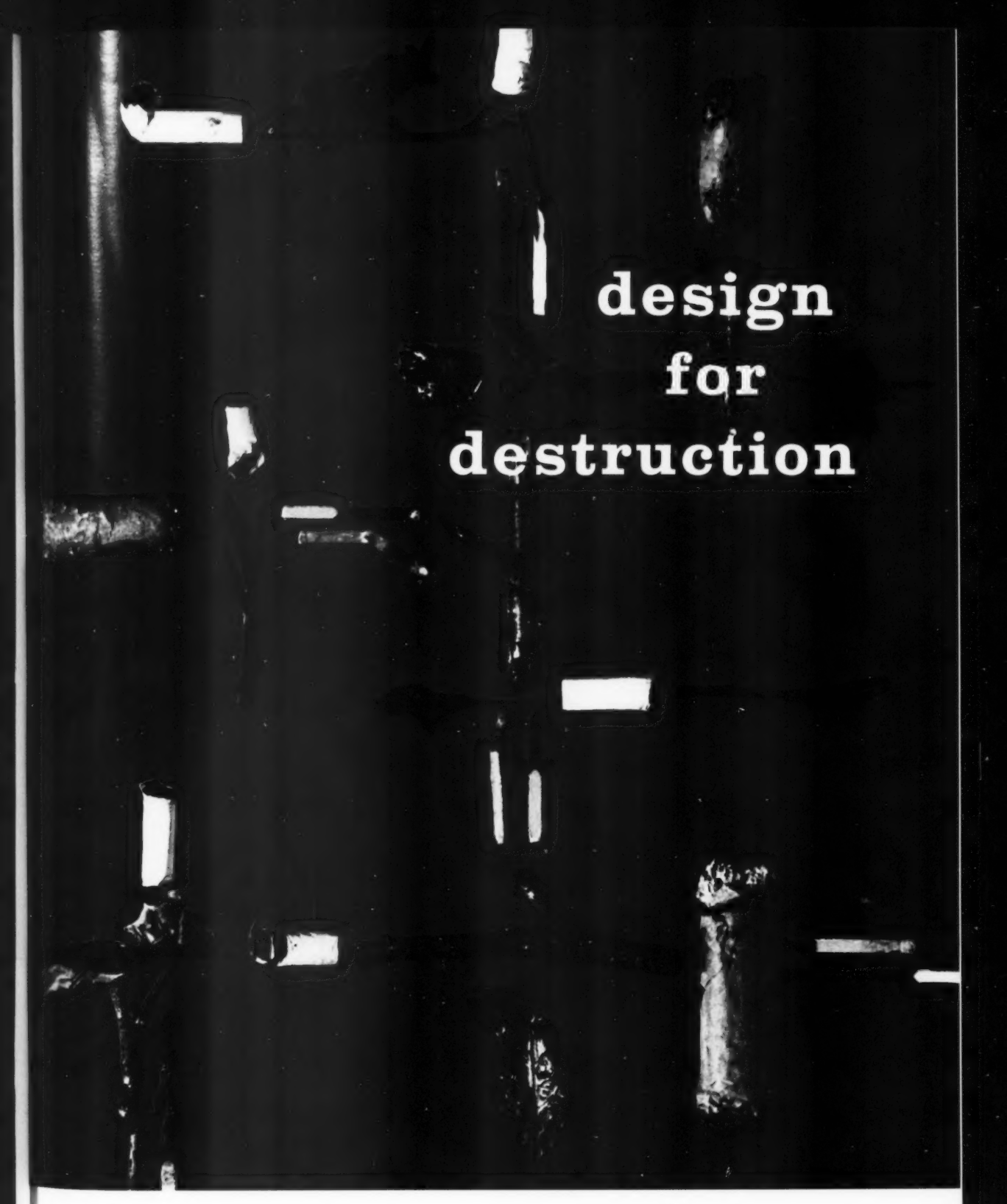

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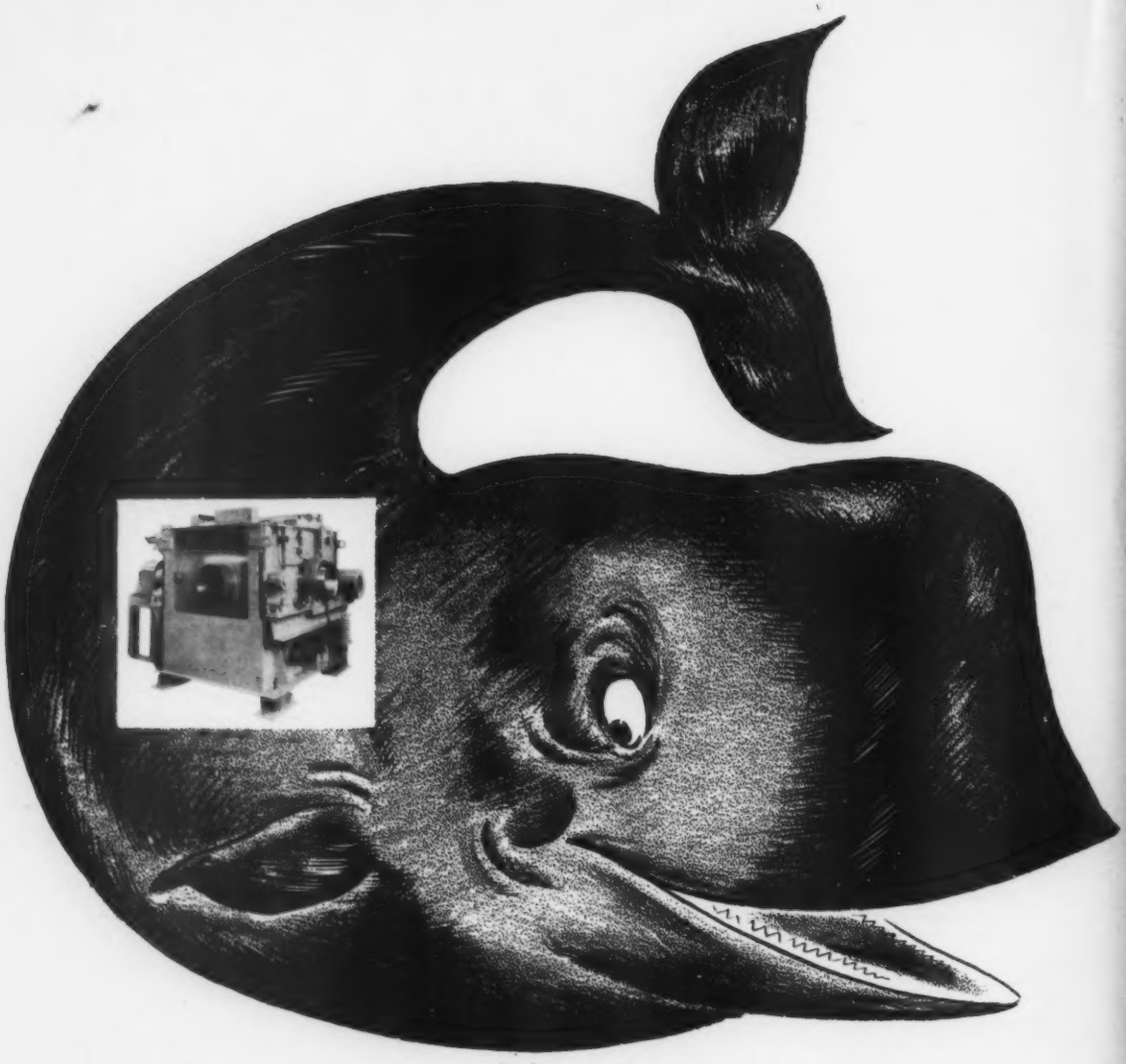
Weyerhaeuser Company

Pulp and Paperboard Division



Takes little space . . . delivers a whale of a lot of high consistency stock through slotted plates at low screening cost per ton . . . that's the BIRD VIBROTOR SCREEN *for you!*

Occupying less than 150 sq. ft. of floor space, a Vibrotor Screen with .012" slots delivers up to 55 tons of 1.5% unbleached sulphite, 68 tons of bleached sulphite, 80 tons or more of 1.9% bleached sulphate, 100 tons or more of 1.5% unbleached hardwood, 140 tons of 1.9% deink stock.

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CURRENT COMMENTS

Advance date set for tariff rate changes—Growing shortage of rosin

WARREN B. BULLOCK

- **To advance the effective date for tarriff rate changes (both internal and external) from July 1, 1961, as originally planned to January 1, 1961. However a proposal to advance the date still further to July 1, 1960, was defeated in order to allow time for further international conferences.**
- **To hold joint conversations with the Outer Seven (Britain, Scandinavia, etc.) within the framework of the eighteen-nation organization for European Cooperation and to invite the participation of the United States and Canada as full members.**

The above decisions were voted unanimously by the foreign ministers of the six European Common Market nations, at a conference held on May 11 in Luxembourg. Definite steps were taken to avoid a trade war with the European Free Trade Association, known as the Outer Seven, and with the United States and Canada.

Under the program as now formulated, the six Common Market nations will adjust existing rates on January 1, 1961, to universal rates between all countries within the area. Those with high rates will reduce them and the low-tariff nations will raise their rates. In some cases the rates effective January 1, 1961, will be uniform.

The external rates will be adjusted January 1, 1961, to an average of all the present external rates of the individual countries but will be generally higher than the so-called internal rates. Under this schedule, the present rates on most paper and paper products will be increased in Germany and the Benelux nations, but decreased in France and Italy. The United States had favored the now-rejected July 1, 1960, date for tariff changes with the restriction that all external rates be reduced 20 per cent at that time.

An earlier decision of the Common Market nations placed a 6 per cent duty on all paper-pulp, with the provision that any of the six might establish a quota duty-free for sufficient pulp to meet its paper-making requirements.

Rosin production

The paper industry is deeply involved in the growing shortage of rosin—an essential element in the manufacture of a host of industrial products. The coming of the paper industry to the south and the utilization of the pine forests, cut the inventory of trees available for gum farming. Much of the world's supply of rosin now comes from the distillation of wood and from fumes and waste liquors given off in pulp production.

At one time, the supply of rosin was almost entirely from the turpentining of southern pine, then came the development by distillation of wood. Now the producers of rosin are again turning to the tapping of trees for the gum. In 1930 the production of rosin from gum farming was 1,600,000 drums but dropped last year to 350,000 drums. On the other hand, the paper industry has been a spur to the production of rosin from wood distillation and while in 1930 the production from this source was 350,000 drums, it rose last year to 1,200,000 drums. Despite these developments the production of 2,000,000 drums a year is still short of demand and prices have risen in the last year from $8 per 100 lb. to $13. The huge growth of the paper industry in the south has thus been marked by a tightening of the rosin production field—a small but vital segment of southern industry.

A steady growth

With paper and paperboard production increasing 8 per cent in the first quarter of 1960, President Howard E. Whittaker of the American Paper & Pulp Association not only sees no chance of a recession in 1961, but believes that the current year indicates a steady growth. "Pretty good shape" was his analysis of the situation as given in a recent press conference at New York. He said that the production of paperboard had not kept pace with the 1960 growth in paper output, because the paperboard production had shown a faster growth in early 1959 than that experienced by paper. During the first quarter of 1960, paper showed a 10 per cent increase over a year ago while the paperboard ratio was 6 per cent.

Meanwhile a flood of statistical reports has come from the paper mills for the first quarter of the year. Most of the major companies recorded increased earnings, while some few of the smaller organizations did not reach last year's income.

Net incomes

American Writing Paper Corp.—Net income for first quarter, $155,906; a year ago, $134,791.

Bergstrom Paper Co.—Net income for 1959, $883,042; a year ago, $754,521.

Certain-Teed Products Corp.—Net income for first quarter, $67,386; a year ago, $637,825.

Crown Zellerbach Corp.—Net income for first quarter, $9,116,000; a year ago, $8,311,000.

Fibreboard Paper Products Co.—Net income for first quarter, $409,432; a year ago, $1,066,379.

Great Northern Paper Co.—Net income for twelve weeks to March 27, $709,286; a year ago, $152,574.

Hamilton Paper Co.—Net income for 1959, $397,687; a year ago, $138,645.

Hammermill Paper Co.—Net income for thirteen weeks ended March 27, $775,191; a year ago, $622,002.

Inland Container Corp.—Net first quarter income, $1,561,000; a year ago, $1,553,000.

Keyes Fibre Co.—Net income for first quarter, $436,106; a year ago, $384,155.

KVP Sutherland Paper Co.—Net income for first quarter, $1,418,989; a year ago, $1,060,721.

Mead Corp.—Net income for first quarter, $2,817,718; a year ago, $2,669,184.

National Vulcanized Fibre Co.—Net income for first quarter, $492,647; a year ago, $415,400.

Nekoosa Edwards Paper Co.—In our April issue, this column listed Nekoosa's net income for 1959 as $3,676,069. It should have read, "Net income for 1959, $3,076,069; a year ago, $2,502,518".

Packaging Corp. of America—Net income for nine months ended March 31, $4,917,275; a year ago, $5,949,150.

Paterson Parchment Paper Co.—Net income for first quarter, $97,000; a year ago, $171,000.

(Continued on page 191)

WHADAYA MEAN "OR EQUAL"?

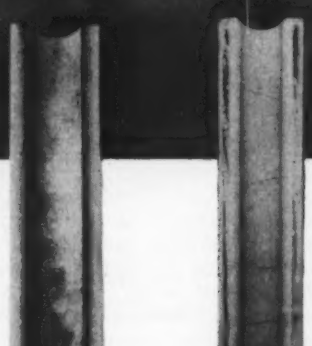
UNIBESTOS... No-Shrink, No-Shock!

No matter how carefully specifications are worked out, the term *"or equal"* can mean trouble . . . big trouble. Take insulation shrinkage and shock for example. Hard to predict, hard to account for, they mean heat loss and replacement that can put a serious crimp in any profit picture.

That's the very reason why Unibestos *"no-shrink," "no-shock"* insulation is worth more to you. Yet it sells at competitive prices. Prove to yourself how Unibestos saves you money by eliminating shrinkage, breakage, and thermal shock. See how it defies fumes, acids and moisture; cuts application time and cost, and guarantees real insulating efficiency.

Available in a full range of standard pipe sizes and in block form. Single thicknesses to five inches. Specials to 44" O.D. in half sections.

Write today, on your letterhead, for Bulletin No. 65610.



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Exclusive use of extra long *Amosite* asbestos is your positive assurance that Unibestos insulation has the mechanical qualities that prevent thermal shock effects. Guaranteed up to 1200°F, Unibestos has been known to withstand temperatures as high as 2000°F, without thermal shock effects.

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UNION ASBESTOS AND RUBBER COMPANY • FIBROUS PRODUCTS DIVISION
DEPT. 249, Bloomington, Illinois
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Current Comments . . .

Scott Paper Co.—Net income for first quarter, $6,676,860; a year ago, $5,865,647.

Sorg Paper Co.—Net first quarter income, $263,943; a year ago, $180,170.

St. Croix Paper Co.—Net income for first quarter, $459,926; a year ago, $247,105.

St. Regis Paper Co.—Net income for first quarter, $5,951,696; a year ago, $5,794,081.

Union Bag-Camp Corp.—Net income for first quarter, $4,709,496; a year ago, $4,894,363. Sales for the quarter were 10 per cent over those for first quarter of 1959—a new sales record for any quarterly period in the company's history.

Financial report

The continued weakness in securities markets had some effect on paper mill issues. Nearly all showed some weakness as compared with a month ago.

Stock and Bond Quotations

New York Stock Exchange — Stocks

Closing Prices	May 10, 1960	April 10, 1960
American Can	37⅞	41¼
Same Pref.	37½	37¼
Celotex	30⅛	32¼
Same Pref.	* 18⅝-18⅞	18⅛
Certain-Teed	12⅝	12½
Champion P & F Co.	31⅛	34¾
Same Pref.	91¾	91
Chesapeake of Va.	36¼	35
Container	24¼	26½
Same Pref.	* 86-87½	87½
Continental Can	42¾	43⅞
Same Pref.	* 81-81¼	81
Crown Zellerbach	45⅛	44
Same Pref.	* 89¼-91	—
Diamond National	31⅛	31¾
Same Pref.	30	30
Federal Paperboard	37½	45½
Same Pref.	* 20¼-20¾	21⅜
Fibre Paper Board	37¾	39⅞
Great Northern	42⅛	42⅛
Hammermill	29¼	30
International	100	116
Same Pref.	* 89½-92½	89½
Kimberly-Clark	72⅞	69⅝
KVP*Sutherland	28	27½
McAndrews & Forbes	* 26½-27	27¼
Masonite	32½	32
Mead Corp.	37⅜	40⅛
Same Pref.	* 86¾-88	86⅝
Minn & Ont.	28¾	30
Oxford Paper	29	27¼
Same Pref.	* 87½-89	—
Rayonier	18⅜	20¼
Riegel Paper	31	35
St. Regis	38⅛	43¼
Same Pref.	* 91-93	91
Scott	83⅛	81½
Same $4 Pref.	* 89-90⅛	—
Same $3.40 Pref.	* 74-75½	74¼
Seuright	34	35¼
Standard Packaging	24	28⅛
Same $1.60 Pref.	* 75-80	87
Same $1.20 Pref.	* 28⅛-29¼	32¾
Same 6% Pref.	28¾	31½
Union Bag-Camp	33	37¾
United Bd & Cart	* 26-26¼	25
U.S. Gypsum	103	100½
Same Pref.	*152-153	152
S. D. Warren	* 31¼-31½	—
West Va. P & P	41¾	40⅝
Same Pref.	93	94

New York Stock Exchange — Bonds

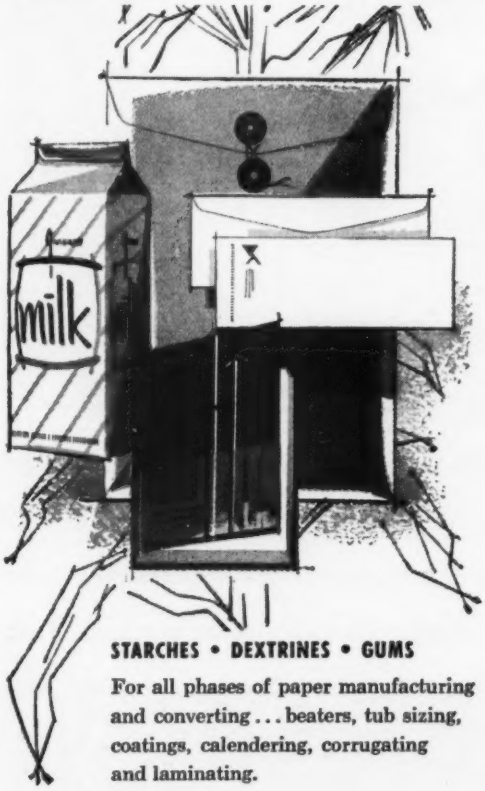
Champion P & F Co. 4½%	107	108¼
Champion P & F 3¾%	—	88¼
Kimberly-Clark 3%	88⅛	—
Oxford 4¾%	104½	102⅛
Scott 3%	108¼	107½

American Stock Exchange — Stocks

American Writing	31	31
Allied Paper	13⅜	14⅜
Brown Co.	14⅛	14
Puget Sound P & T	23⅛	23¼

*Closing Bid and Asked Prices

Look what happened to the corn we took off the cob



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NEW IDEA IN MATERIAL HANDLING CUTS COSTS AT BIRD & SON, INC.

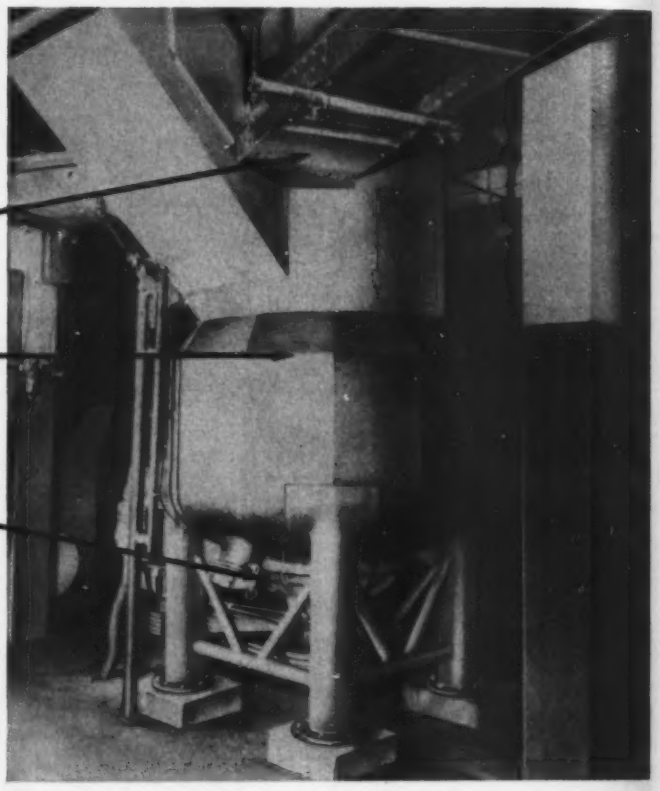
From
Converting Mill . . .

Via Conveyors

To Pulper

To Pump*

To Pulp Mill



With the Impco Solvo® Pulper

The Model 2U Solvo Pulper, playing a dual roll at Bird & Son, Inc., East Walpole, Massachusetts, has sharply reduced previous material handling costs. It is operating continuously under automatic control as both a material handler and a pulper. Boxboard broke from the converting machines is delivered by conveyors to the Solvo which simultaneously pulps and pumps it to the pulp mill. The units' single 50 HP motor handles both pulping and pump-away demand at a 24 ton/day rate.

This is one of a wide variety of Solvo Pulper applications. Others include de-ink cooking, dry end broke handling, paper machine furnish pulping, transfer of high yield cooked chips to refiners as well as the normal pulping of broke, wet strength and waste paper. Units are available for any capacity requirement.

*The pulping element, extractor plate and stock pump are one rotating assembly.

IMPCO®

IMPROVED MACHINERY INC.
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In Canada: Sherbrooke, Machineries Limited, Sherbrooke, Quebec

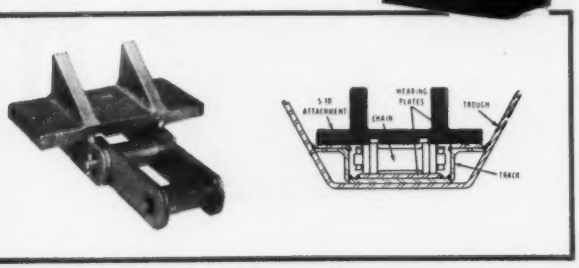
For more data circle 115 on Post Card

Tough as they come

for pulpwood handling

Time and again, Link-Belt SS-150+ has replaced other chains and produced dramatically longer life on pulpwood conveyors. With its average ultimate strength of 100,000 lbs — plus hardened pins, bushings and steel sidebars — it resists repeated shock loads. Joint bearing surfaces resist wear . . . ignore constant subjection to the cutting action of abrasive particles.

Consult new Link-Belt Catalog 1050 for full details. Call for a copy from your Link-Belt office or authorized stock-carrying distributor, listed under CHAINS in the yellow pages of your Phone Directory.



SHOCK ABSORBER. S-10 attachment for SS-150+ chain has broad sliding surfaces that contribute to long wear-life of both track and chain. Impacts are absorbed by track, not chain joint.

LINK-BELT SS-850 STEEL CHAINS are engineered to withstand the tremendous suspended weight of barking drums and keep them turning. Catalog 1050 offers complete information.

LINK-BELT

THE SYMBOL OF QUALITY — LINK-BELT

CHAINS AND SPROCKETS

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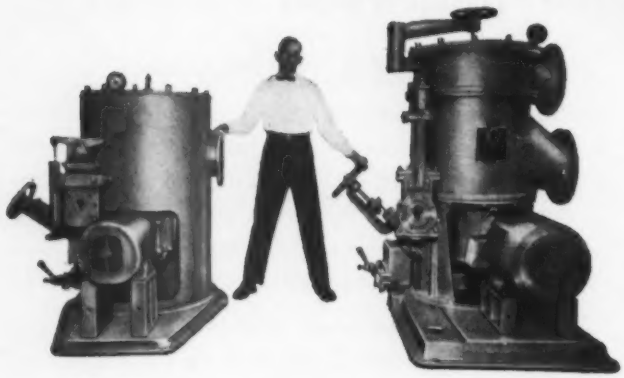
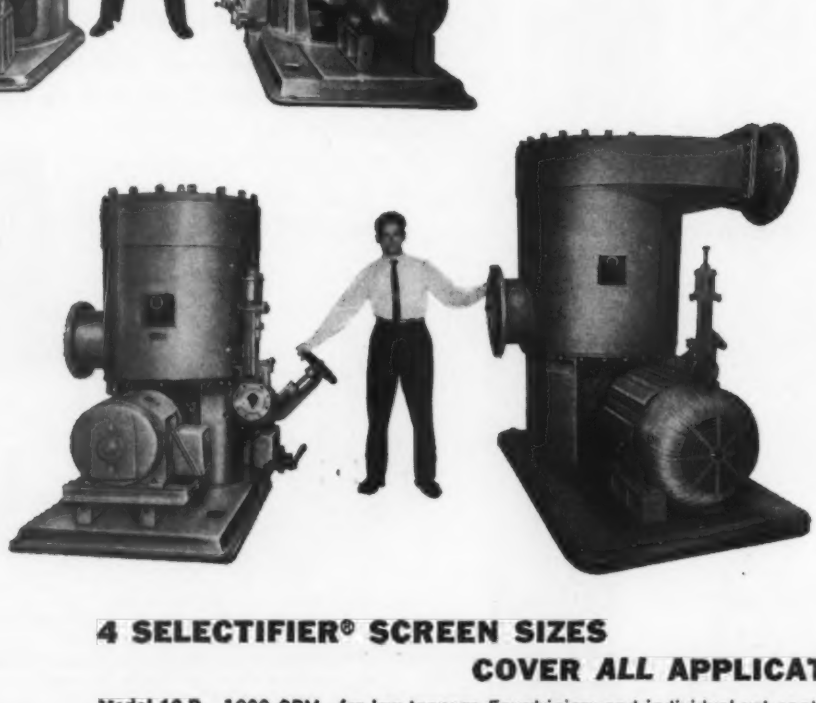
Every Size Paper Machine—any capacity Pulp Mill

Can benefit from ***Pressurized Screening***





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Model 12-P	1200 GPM—for low tonnage Fourdriniers and individual vat application on small capacity cylinder machines
Model 24-P	3800 GPM—used on all paper grades—and in pulp mill hot stock refining and pressure washing systems
Model 30-P	5700 GPM—Intermediate size...economically suited to many pulp and paper mill conditions
Model 36-P	9000 GPM—Best for wide, high speed Fourdriniers and high capacity pulp mills.

All models deliver the well-known Selectifier Screen benefits
Increased Production • Improved Formation • Cleanest Sheet
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Have your Shartle Sales Engineer give you full information

The Black-Clawson Company, Shartle Division, Middletown, Ohio

Single Source for Stock Preparation Machines and Systems

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NEWS of the INDUSTRY

Waste Dealers Association Changes Name

On June 1, 1960, the 47-year-old name of National Association of Waste Material Dealers will bear the new name of National Association of Secondary Material Industries (NASMI).

The new name was adopted to describe more properly the Association as it is constituted today.

Clupack Now Has All-Directional Stretch

A new major development was reviewed at a recent all-day Clupak Research and Operations Symposium. The new development was a new form of Clupak extensible paper which has an all-directional stretch (instead of the one-direction extensibility of present Clupak paper).

The all-directional stretch form was produced on a 60-in.-wide pilot machine.

In another report, also reviewed during the symposium, it was stated that current research and engineering shows promise for the development of a heavy paperboard of high extensibility which will have a wide variety of uses.

Other details of technical progress in various other areas of extensible paper research and production were also made available to the licensees during the all-day session.

Clupak Inc. is spending more than $300,000 annually in research on various forms of extensible paper.

TAPPI Ninth Statistics Course

Application forms are now available for the 9th Pulp and Paper Statistics Course to be held at Brevard College, Brevard, N. C., August 8 to 19.

Requests for forms should be addressed to Dr. R. J. Hader, The Institute of Statistics, North Carolina State College, Raleigh, N. C. The fee for either the basic or the advanced section of the course is $275—covering board and room for the two-week period, textbook and other materials.

Universal Folding Box Celebrates

The Universal Folding Box Co. Inc. of Hoboken, N. J., recently celebrated its 50th anniversary and also the 75th birthday of its president, Hyman Batkin.

Founded during 1910 in New York City, the company was located in Brooklyn for 20 years .Since 1936 it has occupied a square block in Hoboken. Hyman Batkin has been president since 1914. His sons Sanford L. and Stanley I. are also officers. Universal is one of the largest independent producers of cartons on the Eastern seaboard.

Corporation Changes

A proxy battle for control of **United States Envelope Co.** has commenced between **West Virginia Pulp & Paper Co.** and **Hammermill Paper Co.** West Virginia is offering $38 per common share of the envelope company for 250,000 common shares. The admitted objective is for West Virginia to control the envelope company and to prevent its acquisition by Hammermill which had previously announced a plan to acquire the envelope company by a share-for-share exchange of stock. The proxy battle between two great paper companies is the first such instance for many years, if ever, and involves prominent personalities in the paper industry. The target in part is the desire of West Virginia, which has no envelope converting affiliate, to secure control of the company which has hitherto been the authorized converter of Hammermill paper into envelopes.

• • •

Minerals & Chemicals Corp. of America, Philipp Brothers Inc. and **Philipp Brothers Ore Corp.** have announced that their respective directors will recommend to their stockholders, the merger of the three companies. The merged corporation will be known as **Minerals & Chemicals-Philipp Brothers Inc.**

• • •

The acquisition of the **Egry Register Co.** of Dayton, Ohio, by the **Allied Paper Corp.** has been announced. Egry is one of the oldest companies engaged in the manufacture of continuous printed business form systems. Egry will be acquired as a wholly owned subsidiary by Allied. There will be no change in personnel or management.

• • •

Champion Paper & Fibre Co. of Hamilton, Ohio, has announced the acquisition of the **Crown Plastic Cup Co.** of Fort Worth, Texas. The cup company, which will become a wholly owned subsidiary of Champion, manufactures disposable plastic drinking cups called "Thermo-

Hooker Offers Royalty-Free Patents to The Paper Industry

Amplifying its technical service to the pulp and paper industry, Hooker Chemical Corp. of New York, N.Y., announces that its entire portfolio of U.S. and Canadian patents on pulp bleaching and related processing is now being made available to pulp and paper manufacturers on a royalty-free license basis.

Under this new policy, Hooker will grant a royalty-free license for the life of any of these patents to any pulp and paper producer interested in using them. The only requirement is a token paid-up license fee of $1.00 for each patent used.

These patents, seven in all, cover significant contributions to pulp and paper technology by the company. Three patents relate to production of chlorine dioxide, used for bleaching pulp. Others encompass a continuous, automatic process to produce calcium hypochlorite bleach liquor; recovery of sodium sulfate and hydrochloric acid from acid sulfate waste materials; a three-step bleaching process; and purification of kraft and other pulps. Patents covering chlorine dioxide production as well as sodium sulfate and hydrochloric acid recovery are owned by Hooker in the United States only.

Hooker also has five other patents now pending relating to pulp bleaching. When granted, they are expected to be made similarly available to the pulp and paper industry.

Further information may be obtained from Hooker's Eastern Chemical Division, P. O. Box 344, Niagara Falls, N.Y., or its Western Chemical Division, 605 Alexander Ave., Tacoma 1, Wash.

kups", and injection molded items, marketing them in the Southwest.

• • •

Hammermill Paper Co. and **United States Envelope Co.** have entered into an agreement providing for the merger of the two companies. The agreement is subject to approval of the stockholders of both companies. U. S. Envelope will be a division of Hammermill under the immediate direction of U. S. Envelope Co.'s present executives.

• • •

A. Calder Jr., president of **Union Bag-Camp Paper Corp.** and P. F. Watzek, president of the **Crossett Co.**, jointly announced today that an agreement has been signed which would permit Union-Camp to investigate the possibilities of acquiring the Crossett Co. As a major phase of the acquisition it is planned to form a separate company to commercialize this substantial timber asset to be financed by the purchaser or jointly with others.

• • •

Unexcelled Chemical Corp. has bought for slightly more than $2 million in cash and stock a controlling interest in **Oneida Paper Products Inc.** of Clifton, N. J., makers of polyethylene and cellophane wrappers and bags.

• • •

C. L. Holbert, president of **H. K. Porter Co. Inc.** of Pittsburgh, Penn., and Edward R. Moran, president of Porter's international manufacturing and marketing subsidiary, has announced that Porter & Cie, S. A., has acquired substantially all the outstanding shares of **Alcace S. A. Fabrica de Aparelhos Electricas de Baixa e Alta Tensao** in Sao Paulo, Brazil.

St. Regis Paper Co. has filed with the Securities & Exchange Commission, a registration statement relative to the issuance of St. Regis common stock to be offered in exchange for the outstanding shares of the capital stock of **Central Waxed Paper Co.** of Chicago, Ill.

Southwest Forest Industries Inc. has effected a consolidation with two more Los Angeles paper products companies as part of its current expansion program. It involves **Accurate Corrugated Specialty Corp.** and the **Arrow Board Corp.**, fabricators and wholesalers of corrugated board and other paper products.

Forestry notes

The House Agriculture Committee has approved H. R. 10572, authorizing and directing that the National Forests be managed under principles of multiple use and produce a sustained yield of products and services.

The largest single tree planting project in the state of Wisconsin is being undertaken this spring by the Rhinelander Paper Co., a division of St. Regis Paper Co. As a result of its successful forest management program, 1,150,000 trees are now being planted on the company's lands from Rhinelander to Ashland.

A professional force of 200 speakers from 37 nations will take the lead in exploring every aspect of forestry —from surveying virgin timber in Alaska to discussing new markets for wood products in Africa—during the Fifth World Forestry Congress to be held in Seattle, Wash., from August 29 through September 10.

A 320-acre "test tube" forest has been established in Western Washington where research foresters will continue efforts to grow better trees faster. This outdoor laboratory will be the scene of forestry experiments in such areas as forest genetics, tree nutrition, animal damage, tree diseases and regeneration.

Pacific Coast Co. is planning to sell almost all of its extensive timber holdings. The possible buyer was not identified.

Reprints of an article by a wildlife researcher for Cornell University entitled, "Conifer Plantations and Wildlife" are available by writing to: Packaging Corp. of America, American Box Board Div., Filer City, Mich. The article is said to have resulted from the first authoritative attempt by a scientist to determine the relationship of evergreen plantings to wildlife habitat.

Application forms for the Fifth World Forestry Congress are available from: Dr. Haig, Fifth World Forestry Congress, Department of State, Washington 25, D.C. The Congress will be held August 29 to September 10 in Seattle, Wash.

A porcupine repellant found to be 75 to 90 per cent effective has been reported by Wendell E. Dodge, graduate student at the University of Massachusetts. The repellant, beta nitrostyrene, is suitable for spraying cottages, boats and similar items. However, because of its present cost it is not economically feasible for wide applications.

Recent Expansions in the Industry

Paterson Parchment Continues with Expansion Program

Paterson Parchment Paper Co. of Bristol, Penn., now in its 75th year, continues to make important capital improvements to meet growing demands for its products and to increase plant efficiency.

Some of the larger items included in plans for the 1960 program are:

1. Purchase and installation of a new high-pressure boiler, costing approximately $250,000, in order to assure continuing safety of operation, reduce operating costs and at the same time supply the plant's increased needs for power and steam, and to insure against plant shutdowns resulting from equipment failure or from required equipment servicing.

2. Replacement of the 35-year-old switch gear equipment in the power house with modern equipment, including construction of a new building for this equipment. Cost of this project, which will assure continuing safety of operation, is estimated at $250,000.

3. In the paper-making department, necessary improvements and modifications will be made to all four paper machines in order to provide greater production, reduce waste, permit greater production versatility, improve product quality, and to provide the continuing maintenance which this expansive equipment requires.

4. In the parchmentising department, the floor under the No. 1 parchmentising machine will be replaced, the washing units on No. 5 machine will be extended in order to increase the production speed of heavy-weight papers, new tanks will be installed to enable the company to purchase chemicals in bulk rates, and certain other improvements will be made on the No. 4 and No. 5 machines.

5. To increase efficiency in the converting department, improvements

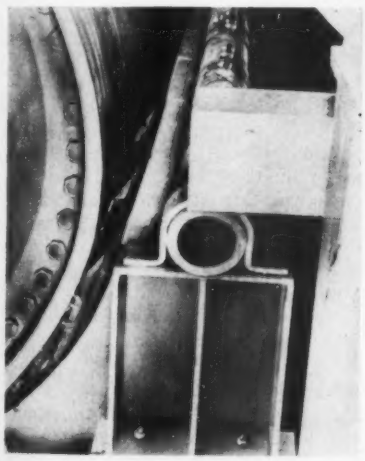
will be made to the sheeting machines, and revisions will be made in the paper cutting section to improve the flow of production.

International Installs J. O. Ross Dryer

For additional control of the final moisture in coated stock, International Paper Co. has installed the first of a new sectional-type, high-velocity air dryer at its Corinth, N.Y., mill.

The dryer is a Ross "SP" high-velocity dryer. It was supplied by the J.O.Ross Engineering Division of the Midland-Ross Corp. and was designed to control drying of every two feet of web independently of the rest of the web, and, to permit the drying rate across the sheet to be varied to obtain a near uniform moisture profile.

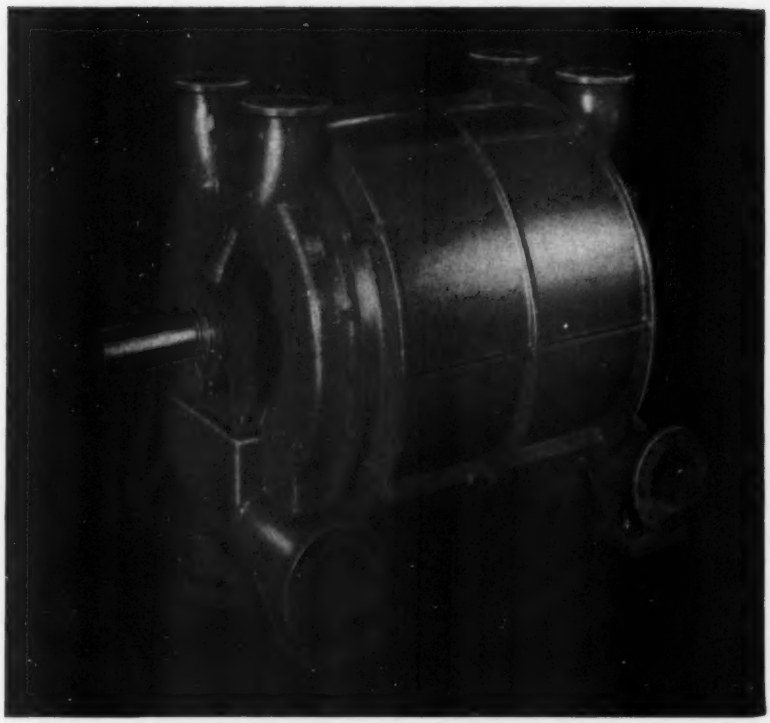
The unit is located beneath the first paper dryer following the coater and comprises a series of curved ducts installed side by side across the face



Sectional-type, high-velocity air dryer is located beneath a bottom roll dryer.

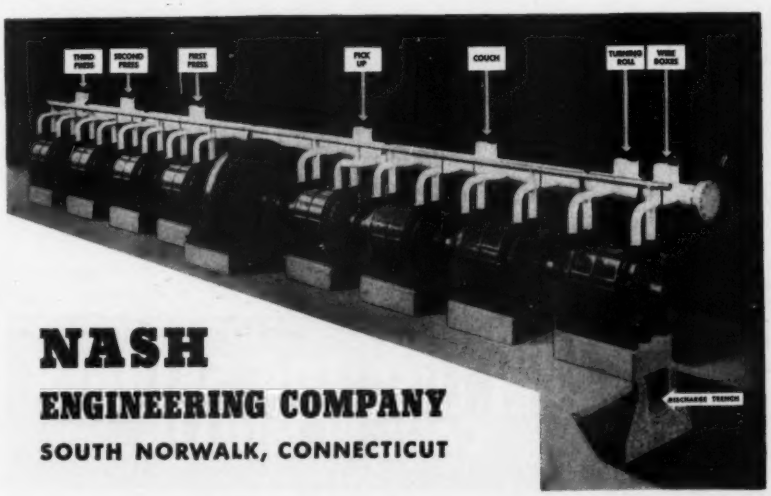
Looking up at Ross SP Dryer installed at International's mill.

This New Nash Vacuum Pump Offers Four Separate Suctions and Vacuums Simultaneously



The Nash 5308-A has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce a variety of capacities and vacuums.

Picture below shows simple drive possible and flexibility of piping permitting capacities to exactly fit requirements of different sections of the paper machine.



NASH
ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT

of the dryer. It has eight sections (or heads) each 2 ft. wide, for an overall width of 16 ft. or 192 in. The face of the roll is 208 in., the high-velocity dryer covering almost the complete width of the face.

International has mounted a moisture indicator for each head on the air dryer control panel and each indicator is connected to a moisture-sensing element. The moisture content is registered on each indicator, indicating the moisture content across the web.

Dusenbery Moves to Larger Plant

John Dusenbery Co. Inc., manufacurers of converting equipment for paper, film and foil, announces the moving of their plant and offices to a larger, more modern plant at 398 Allwood Rd., Clifton, N.J. This move had become necessary due to the steadily increasing demand for Dusenbery converting equipment.

The new plant has a rail siding and also ample platform space to facilitate truck loading. The convenient location, just off Route 3, means easy accessibility to New York City and Newark Airport.

With more than double the previous floor space, additional machinery has been installed and a new floor plan laid out to insure the most efficient production methods possible. This will result in greater volume of output, quicker delivery and keep costs to a minimum.

CZ Constructs New Packaging Plant

Crown Zellerbach Corp. will consolidate its Kansas City and St. Louis flexible packaging operations in a new plant to be constructed at Hazelwood near the St. Louis airport.

The plant will be the company's largest flexible packaging plant when completed. It is located on a 27-acre site, with an additional 18 acres under option for possible future expansion.

American Can Expands Research Center

The first major addition to the Research Laboratory is being planned by American Can Co., Canco Division's Research Center.

About 10,000 sq. ft. will be added to the building. This space will allow for additional prototype and experimental equipment used in the development of the containers of the future.

The present staff at the laboratory totals 170. Annual increases in the staff is also included in the current expansion program.

Buckeye Adds Second Lime Kiln

A second lime kiln, which could result in an annual savings of up to $30,000, has been installed at the Foley, Fla., mill of Buckeye Cellulose Corp.

The new kiln is designed with an automatic flow control system using magnetic-type flow meters and special valves. Analysis of the operation before and after the application of flow measurement and control showed the following specific benefits: 1. Kiln capacity has been increased due to more even load. Previously, several cars of makeup lime per month were required. 2. The quality of the reburned lime product has been improved. 3. Fuel costs decreased 15 per cent due to more uniform operations.

Initial operation of the second kiln was unsatisfactory due to problems with the feeding of lime mud and water treatment sludge. Feed rates for the two materials were set manually on the basis of the torque load of the respective centrifuges. This arrangement was satisfactory for feeding the lime mud, but the actual flow of the water treatment sludge could not be correlated with the torque. Solids would accumlate ahead of the feed valve and reduce the flow of sludge, thus causing inconsistent loading of the centrifuge.

The magnetic-type flow control system was installed on the lime mud and water treatment sludge lines to overcome the feed difficulties. The systems were each made automatic by connection to an indicating transmitter in the feed house and a recording receiver controller on the firing panel. With the new systems, as soon as any solids accumulate, the controller opens the feed valve slightly and passes the material before an appreciable upset can occur.

"Western Star"—New Machine for St. Regis

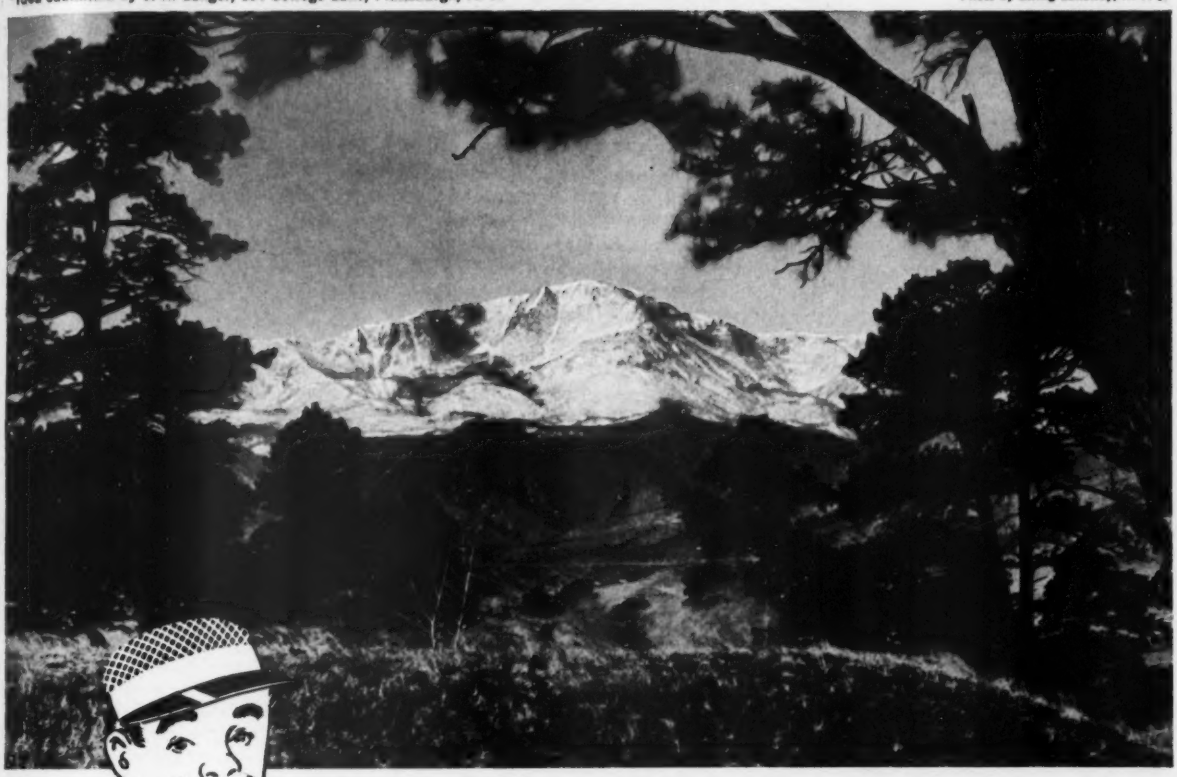
The $30-million expansion program which was launched by St. Regis Paper Co. at Tacoma, Wash., is well underway. The program will almost double the mill's productive capacity to meet the increasing requirements of customers as well as the needs of the company's own expanding bag and container plants in the West.

A second paper machine, called the "Western Star", is now being in-

For more data circle 118 on Post Card

*Idea submitted by J. H. Langer, 154 Oswego Lane, Plattsburgh, N. Y.

Photo by Ewing Galloway, N. Y. C.



HAM FELTZ says:

"Reminds me of HAMILTON Felts... the 'peak of perfection'!"

*WIN... *A NEW Shakespeare Spincast Fishing Outfit!*

"What famous place reminds you of Hamilton Felts? Tell us why in a few words; sign your name and address and name of company. Each month, the idea from a papermaker that we use wins a new 1960 model Shakespeare Spincast Rod and Reel—FREE! When identical winning ideas are submitted by 2 or more papermakers, the one with the earliest postmark will be considered the winner. *Every U.S. papermaker entrant* receives a famous Rex Spoon fishing lure—FREE. Send me your suggestion—today. Ham Feltz, 612 First National Bank Bldg., Cincinnati 2, Ohio."

YOU CAN'T BEAT

Hamilton

FELTS

" 'Pike's Peak Or Bust' was the slogan
of the big Gold Rush year of 1859.
Shuler & Benninghofen was already a year old.
Since then, over 100 years
of skill, experience and integrity
has been woven into Hamilton Felts.
Every operation in their manufacture,
from the selection of highest quality wools,
through the careful looming,
joining by hand, and finishing process—
is characterized by our
traditional code of craftsmanship.
Today's Hamilton Felts—'the peak of perfection'—
also incorporate the results of our
continuing program of technical improvement."

If one of our 300 modern,
technically proven styles
won't solve your specific problem,
we'll be happy to design a Hamilton Felt that will.
Just ask your Hamilton Felts Service Salesman.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

For more data circle 119 on Post Card

stalled. It will have an initial capacity of 400 tons a day and will produce kraft paper. The pulp mill will be expanded to meet the needs of the new machine. When expansion is complete, the kraft mill will produce 750 tons a day on the new machine, (plus the existing one), and will boost the annual capacity of the mill to 250,000 tons of paper.

Champion to Manufacture Plastic-Coated Papers

Champion Paper & Fibre Co. of Hamilton, Ohio, recently demonstrated to the public that the company has entered the field of plastic-coated papers and plastic films.

Champion introduced its product at the Packaging Show at Atlantic City in early April. The entry was a polyethylene coating with a surface treated by a special process. Regular inks printed by standard processes anchor firmly to this surface.

Equipment for plastic extrusion coating of Champion papers will be installed at the company's Waynesville, N. C., plant.

Cellu-Craft Broadens Product Line

An $800,000 expansion program has been planned by Cellu-Craft Products Corp. at its manufacturing facilities in New Hyde Park, N. Y. The company will now produce a diversified line of laminated and extrusion-coated films, foils and papers engineered for use in various industries.

In addition to the laminating and extrusion-coating operations, the new building will accommodate rotogravure printing presses, constant tension slitter-rewinders and a completely equipped quality control laboratory.

Egan to Double Plant Facilities

Frank W. Egan & Co. of Somerville, N. J., has announced plans to more than double its principal plant facilities.

According to Edward F. Egan, president, an additional 38,000 sq. ft. of working space will be added to the 30,000-sq.-ft. building. Construction is expected to begin early this spring. September is the target month for completion.

U.S. Group Helps Mexican Firm

A Chicago investment group is backing up a pilot plant in Orizaba, Mexico, which will begin producing paper from bamboo.

Frank Bork, the representative stated that the plant will employ a new process developed by his Mexican engineering associate, Luis Martinez del Rio.

St. Regis Expands Production of Kraft Paper

St. Regis Paper Co. has announced that it has made an agreement with Southland Paper Mills of Lufkin, Texas, for the manufacture of Kraft paper on one of Southland's four paper machines. The output of Kraft paper will be available to St. Regis and Perkins-Goodwin Co.

Southland is now in the process of installing the necessary equipment for converting the paper machine to the manufacture of kraft paper.

Black-Clawson Changes Department Into a Division

The Air Systems department of Black-Clawson Co. has now become a Division of the company due to its growth.

Frank T. Peterson, president of the company, has announced that the rapid acceptance of the 3-D high-

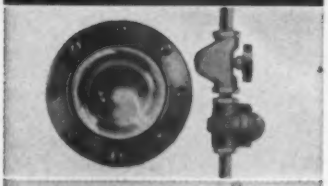
5 PROFIT MAKERS for the MODERN PAPER MILL

Ross Midwest Fulton Dryer Drainage Systems

Pays for itself in steam savings alone. Also increases production from 10% to 30% and improves quality of the sheet.

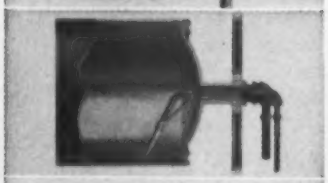
The Cowie Scraper

A proven condensate removal device for rotating dryers. Condensate film is reduced to a minimum, higher heat transfer, lower evacuation differentials, lower steam consumption.



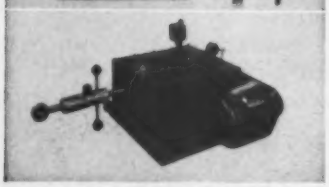
Ross Midwest Ball Sight-Flow Indicators

Self-cleaning, front and side visibility, may be installed either vertically or horizontally, you know what's going on inside the dryer.



Ross Midwest Auto-Flex Syphon

The most dependable syphon, fits any syphon type dryer, always maintains proper clearance, no adjustments, minimum maintenance.



Hydroscillators for Rewinders

Eliminates wrinkles and hard and soft spots on the roll. Here's the key to less loss at the finished end.

Write today for more information on these 5 ROSS MIDWEST FULTON *Profit Makers*

ROSS MIDWEST FULTON
A Division of Midland-Ross Corporation
Box 846, Dayton, Ohio

For more data circle 120 on Post Card

PICTURED left to right are Jeff Thompson, fine paper manager; Raymond Bradley, project manager; and Robert Purser, wrapping paper manager, breaking ground for the new Jacksonville Paper Company warehouse located in Jacksonville, Fla., This 84,000-sq.-ft. building will be completed the early part of July, 1960. The warehouse will be adjacent to the 120,000-sq.ft. manufacturing plant completed last year. This addition represents a continuation of the expansion program that is currently in progress.

velocity dryer and other air systems equipment has warranted the establishment of the Air Systems group as a sixth manufacturing division of the company.

The entire operation is now being moved from its initial headquarters in Fulton, N.Y., to Hamilton, Ohio, plant of the Black-Clawson Co. The division is under the joint management of John D. Lynch and Robert R. McKellar.

$33 Million Program Planned by Eastman

Four major building projects will highlight a $33-million capital improvement program planned this year for Eastman Kodak Co.

The projects planned are: A new paper mill capable of producing a 150-in.-wide web of paper at a speed of about 700 fpm; A new emulsion coating alley structure; A new printing department building; and an addition to the distribution center where all the products manufactured by Kodak in Rochester are warehoused.

Hooker Moves Corporate Headquarters

Hooker Chemical Corp., as of March 21, 1960, has moved its corporate headquarters, the New York district sales offices, and the export sales department to 666 Fifth Ave. New York 19, N. Y.

The company's corporate headquarters was formerly located at Niagara Falls, and the New York district sales offices and export sales department were both formerly in the Lincoln Bldg.

Multi-Million-Dollar Program Set for Consolidated

Stanton W. Mead, president of Consolidated Water Power & Paper Co. has announced plans for a multi-million-dollar enamel printing paper expansion program at the company's Wisconsin River Division.

A new paper machine will be installed at the division. Construction work on the project will get under way later this year with completion scheduled for January 1962. When completed, the company will have eleven paper-making machines devoted exclusively to the manufacture of this product. The division now operates two enamel paper machines.

Riegel Builds New Plant for Converting Division

Riegel Paper Corp. has contracted for a new 150,000-sq.-ft. plant for its Quality Lithographing Division.

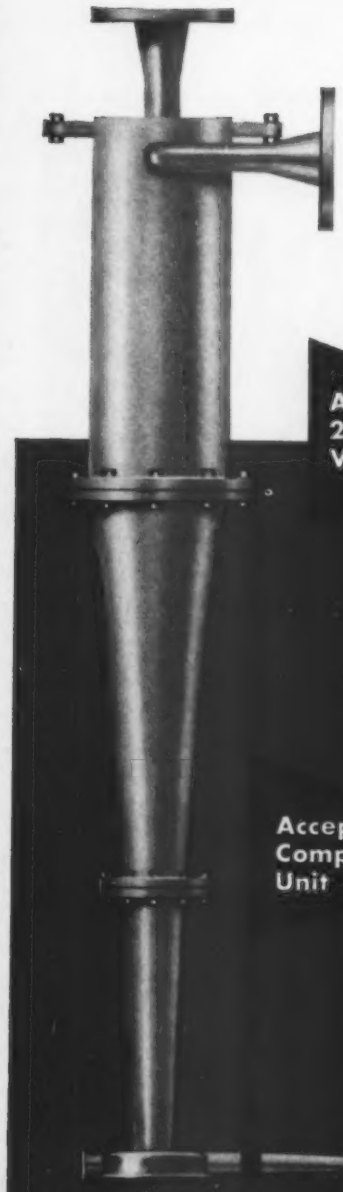
(Continued on page 204)

NO WRINKLES
NO Hard or Soft Spots at the Winder with...
RMF hydroscillators
This simple, compact oscillating unit provides a constant horizontal shifting motion while the sheet is being wound into a roll. This back and forth movement prevents wrinkles from "tracking" and building up throughout the roll. No more wrinkles, no more hard and soft spots!
Check your finishing room...our RMF Hydroscillators will give you a higher percentage of salable paper. For more information send for Bulletin No. 101.
MR
ROSS MIDWEST FULTON
A Division of Midland-Ross Corporation
Box 846, Dayton, Ohio

For more data circle 121 on Post Card

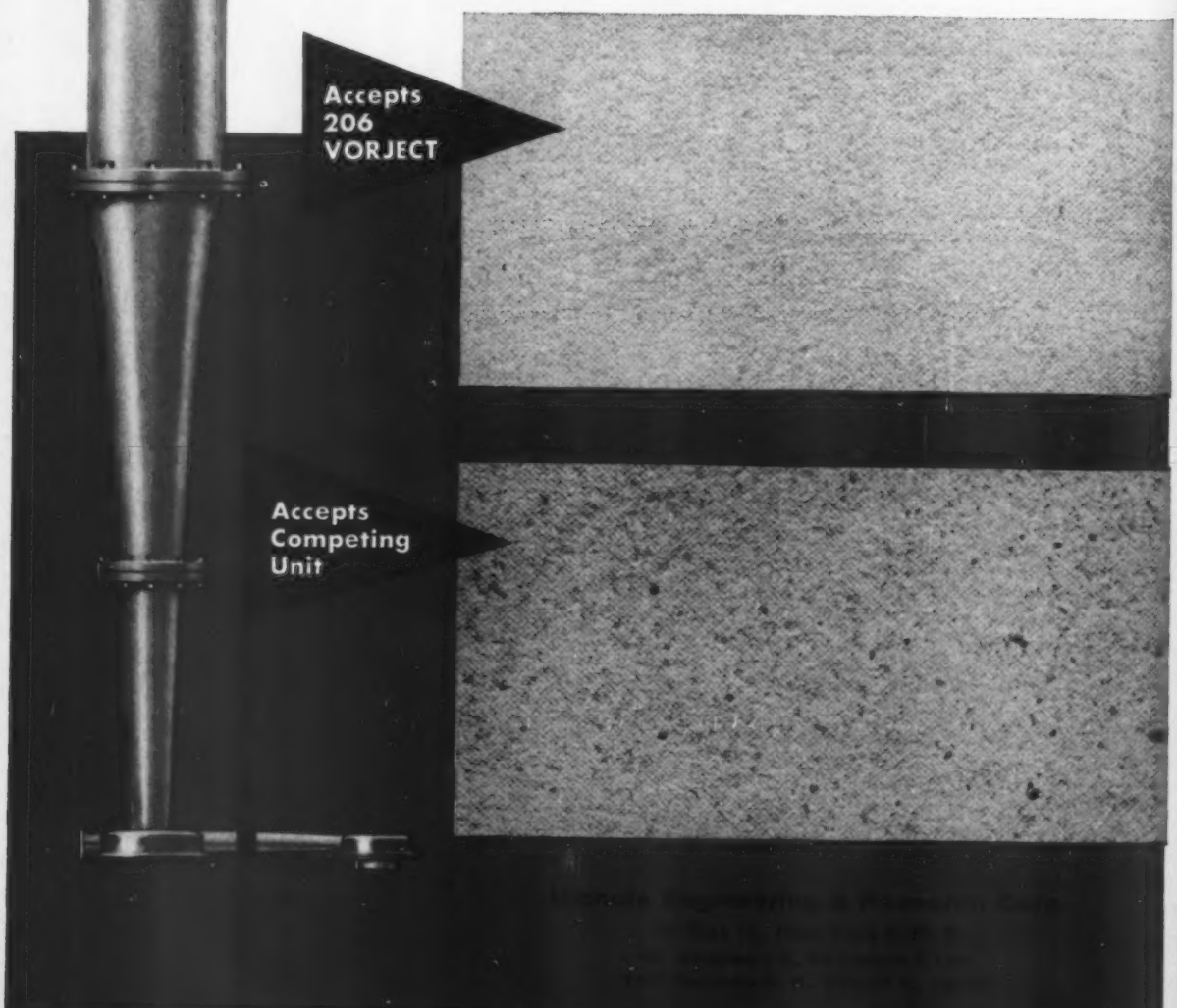
BEST BY TEST!

Nichols Freeman 206 VORJECT® proves stock cleaning superiority in side-by-side test



Compare unretouched photographs below of actual hand sheets magnified three times. Get the additional advantages of Nerco "know-how".

1. **Stainless steel, with built-in wear resistance**
2. **Large unit capacity**
3. **Special non-clogging rejects control**
4. **Low fibre losses**
5. **No air insuction**



For more data circle 122 on Post Card

Coming Events

TAPPI

August 22-24 — 14th Alkaline Pulping Conference, Multnomah Hotel, Portland, Ore.

August 24-26 — Forest Biology Symposium, New Washington Hotel, Seattle, Wash.

September 27-29 — 11th Testing Conference, Pantlind Hotel, Grand Rapids, Mich.

October 6-7 — 5th Deinking Conference, Conway Hotel, Appleton, Wis.

October 10-13 — 10th Corrugated Containers Conference, Royal York Hotel, Toronto, Canada.

October 17-19 — 15th Plastics-Paper Conference, Hotel Syracuse, Syracuse, N.Y.

October 23-27 — 15th Engineering Conference, Robert Meyer Hotel, Jacksonville, Fla.

PIMA

June 17 — Miami Valley Division, Piqua Country Club, Piqua, Ohio.

September 1-3 — New York-Canadian Division (Fall Meeting), Saranac Inn, Upper Saranac Lake, New York.

September 22-24 — Northeastern Division, Poland Spring House, Poland Spring, Maine.

September 30-October 1 — Pennsylvania-New Jersey-Delaware Division (Fall Meeting), Pocono Manor Hotel, Pocono Manner, Penn.

October 7-8 — Connecticut Valley Division (Joint Fall Meeting with N.E. TAPPI), Hotel Northampton, Northampton, Mass.

October 12-14 — Southern and Southeastern Divisions (Joint Fall Meeting), Williamsburg Inn and Williamsburg Lodge, Williamsburg, Va.

OTHER MEETINGS

June 15-July 7 — Fifth Industry Seminar conducted by The Institute of Paper Chemistry, Institute of Paper Chemistry, Appleton, Wis.

June 19-22 — American Institute of Chemical Engineers joint meeting with Instituto Mexicano de Ingineros Quimicos, Hotel Del Prado, Mexico City.

July 19-21 — Western Packaging & Materials Handling Exposition, Los Angeles Pan Pacific Auditorium.

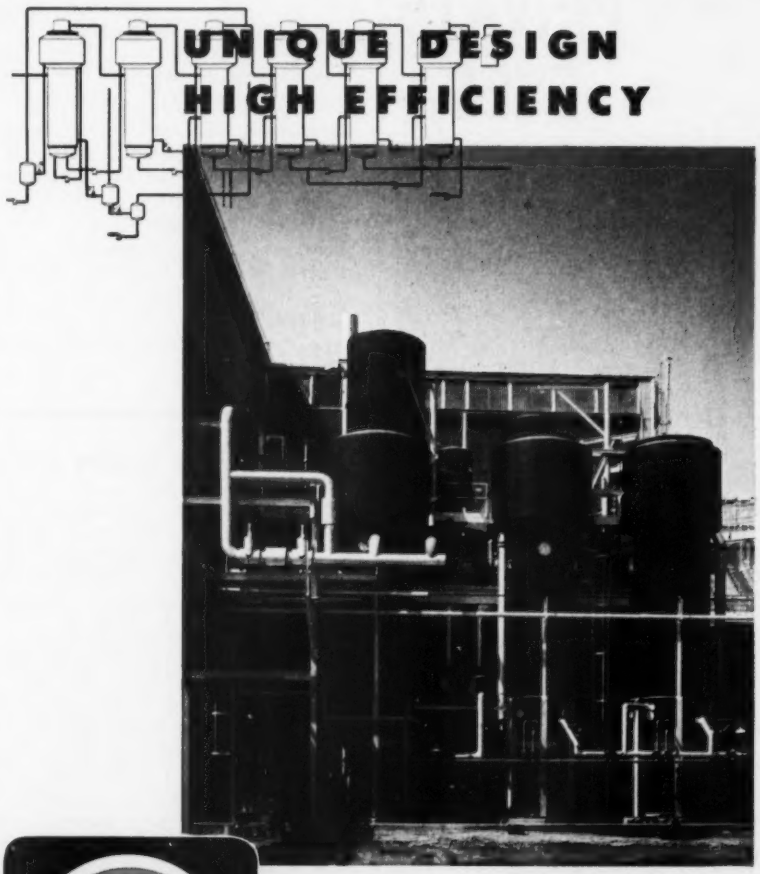
August 7-13 — 11th Annual Industrial Research Conference, Harriman Campas Arden House, N.Y., N.Y.

August 8-19 — 9th Pulp and Paper Statistics Course, Brevard College, Brevard, N.C.

August 14-17 — 4th National Heat Transfer Conference and Exhibit, Statler Hotel, Buffalo, N.Y.

August 29-September 10 — Fifth World Forestry Congress, University of Washington, Seattle, Wash.

September 6-9 — 1960 Summer Meeting of the Technical Section of the Canadian Pulp and Paper Association, Banff Springs Hotel, Banff, Alberta.



GB

BLACK LIQUOR EVAPORATOR at NEW SOUTHERN PAPER MILL

This six body, sextuple effect evaporator system was installed in a U-shaped arrangement and was designed to concentrate 428,000 lbs. of black liquor from 14 per cent to 50 per cent solids content, when supplied with 56,000 lbs. per hour of 45 psi steam. The high efficiency of this system (5.52 lbs. of water per pound of steam) was made possible through a new and novel feed arrangement into the evaporators. The first effect evaporator is equipped with 2 inch diameter stainless steel tubes while the other five have welded seam carbon steel tubes.

For more detailed information write for bulletin #PP 509-1

GB

GOSLIN-BIRMINGHAM
MANUFACTURING CO., INC.
P.O. BOX 631 • BIRMINGHAM, ALABAMA

FILTERS / EVAPORATORS / PROCESS EQUIPMENT
CONTRACT MANUFACTURING
including HEAVY CASTINGS

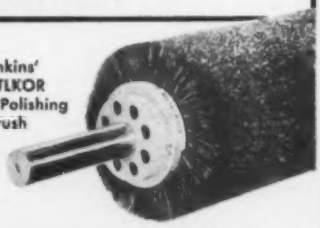
For more data circle 123 on Post Card

PRIVATE EYES

Jenkins' METLKOR brushes, teamed with Viking's Void Detector, check every inch of paper as it is made, find holes, measure them, count them, record them, pinpoint their positions and signal the operator, all automatically. The Jenkins' feeler brush, a critical part of the system, sends a low voltage pulse to the Viking Indicator Unit whenever a hole appears.

John Glump, Vice-President of Viking Instruments, Inc., of East Haddam, Conn., says: "Jenkins' brushes do a superb job for us. They are an improvement on 13 counts:

1. Improve accuracy of flaw detection.
2. Have no abrasive effect on product.
3. Eliminate lint problem.
4. Outlast previous brushes 3 to 1.
5. Made exactly to size, no cutting or alterations necessary.
6. Simplified mounting.
7. Improved construction.
8. Superior bristles.
9. Refillable when bristle is worn.
10. More economical.
11. Free engineering service.
12. Speedy solution to problem.
13. Quick delivery."



Jenkins' METLKOR Paper Polishing Brush

Jenkins' also makes the following brushes for the paper industry:

Conveyor Cleaning • Blanket Washer • Fourdrinier Wire Cleaning • Polishing • Coating • Dusting • Dampening • Spray • Sieve • Static Elimination • Flocking • Felt Cleaning • Feed or Carrier • Paint Brushes • Floor Sweeps

Specify Jenkins' METLKOR the original . . . the best *Metal Core* brush

METLKOR® CYLINDER BRUSHES and LIFEWOOD® WOOD BACKED BRUSHES

M. W. JENKINS' SONS, INC.
— Serving Industry for 80 Years —
442 Pompton Ave., Cedar Grove
Essex County, N. J. • CEnter 9-5150

For more data circle 124 on Post Card

News of the Industry . . .

The plant was designed by Eastern Engineering Corp. and will be located in Atlanta. It is expected to be completed late in 1960 at an approximate cost of $2,000,000.

Modern offset printing and folding carton equipment, photographic studios, plant and die-making facilities, etc., will all be housed in the new facility. It is planned to eventually convert 18,000 or more tons of paperboard annually.

Research and Development Division Established by Continental

Continental Can Co. will bring together the research programs presently undertaken separately by six of its divisions in the establishment of a new General Packaging Research & Development Division.

Under the direction of Dr. Robert B. Mesrobian, the division will do research on the improvement of containers derived from paper, plastics and combinations of the two; and on closures for glass and other containers.

Charmin Begins Production on New Machines

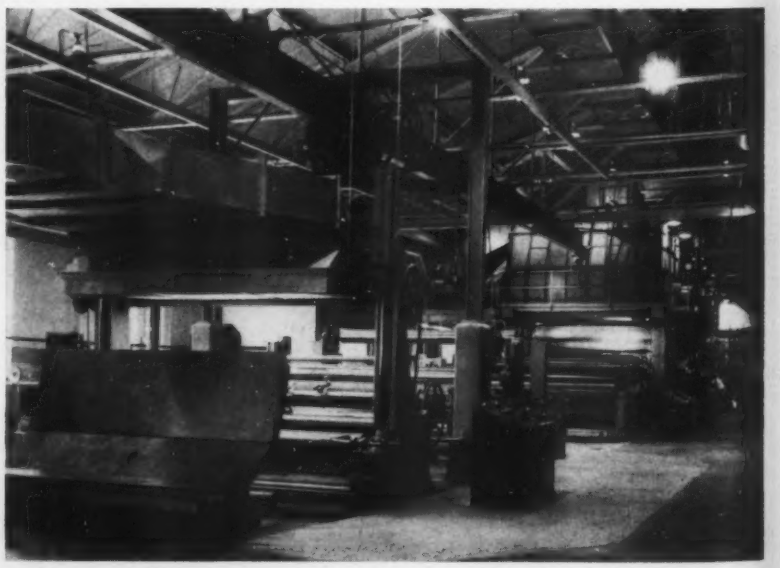
The first of two dry crepe paper machines for the Cheboygan, Mich., division of the Charmin Paper Products Co., has begun production. The new machine is presently manufacturning Charmin single-ply toilet tissue. Equipped to produce two-ply tissue, it embodies many of the latest advancements in design.

A second machine, the same size and type as the first and featuring interchangeable dryers, rolls and other parts, is now being rebuilt and should be ready for operation about the end of the year.

In addition to dismantling and redesigning the two original paper machines, Charmin has made other major improvements that include groundwood producing equipment and repulping facilities. New offices, a new bleach plant, a new water tower, refinishing of the building exterior, and new loading equipment are among numerous other improvements made to date as a part of a four-year renovation program for the plant.

Another major phase of reconstruction is the boiler house project now under way and expected to be completed this fall. Of the five original boilers, only two are being retained. Both have been rebuilt and a new 60,000-lb.-per-hr. unit is under construction. Designed to deliver 150 lb. of steam pressure, the new and rebuilt units will produce approximately 100,000 lb. of steam per hour.

Charmin Paper Products Co. (wholly owned subsidiary of the Procter & Gamble Co.), with headquarters in Green Bay, purchased the Cheboygan plant in 1956 and has almost completely remodeled the plant from roof to basement. This is a part of a four-year renovation program for the plant.

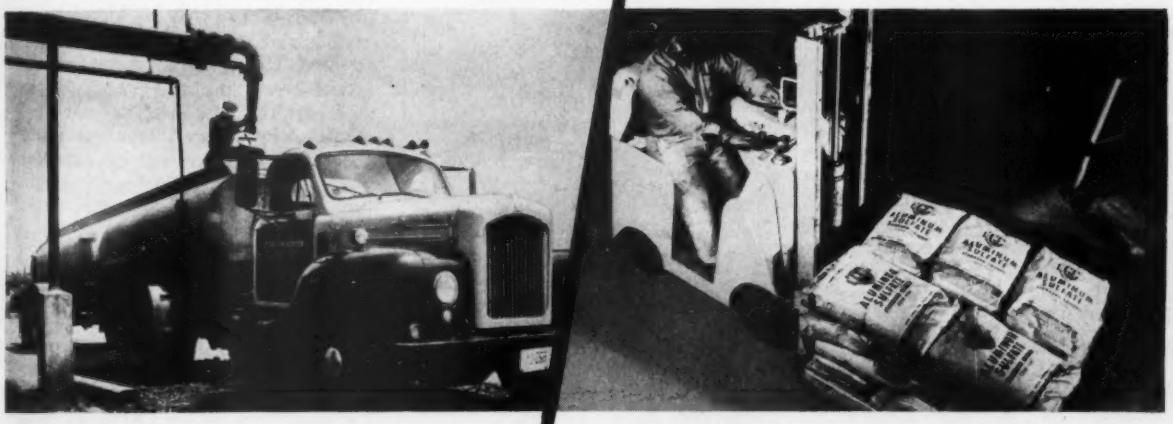


ATLANTA, GA.
CHILLICOTHE, O.
CLEVELAND, O.
DENVER, COLO.
DETROIT, MICH.
E. ST. LOUIS, ILL.
HOPEWELL, VA.
JACKSONVILLE, FLA.
JOHNSONBURG, PA.
KALAMAZOO, MICH.
KENNEWICK, WASH.
MACON, GA.
MARCUS HOOK, PA.
MENASHA, WIS.
MIDDLETOWN, O.
MONROE, LA.
NEW ORLEANS, LA.
PINE BLUFF, ARK.
PORT ST. JOE, FLA.
SAN FRANCISCO
(PORT CHICAGO), CALIF.
SAVANNAH, GA.
TACOMA, WASH.
VANCOUVER, WASH.
WISCONSIN RAPIDS, WIS.
. . . and now
EL SEGUNDO, CALIF.

When it comes to

ALUM

liquid or dry



Come to

GENERAL CHEMICAL

As one of America's primary producers of aluminum sulfate, General Chemical has established a network of strategically located plants from coast to coast. Those listed above can provide you with a close, convenient source of supply. These modern plants are located in the heart of active consuming areas. They facilitate service to you. They save transportation costs. In addition, our chain of warehouses across the country makes stocks of dry aluminum sulfate readily available everywhere. Write or phone today for further information on how these facilities can be put to work for you.

Basic to America's Progress

Allied Chemical

GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N. Y.

For more data circle 125 on Post Card

NAMES in the NEWS

Institute of Paper Chemistry

Dr. Arild J. Miller has recently been appointed as associate director of admissions at the Institute. He will join the Institute staff in September.

In his new post, Dr. Miller will be concerned primarily with the admission of students for graduate study. He will also be an active member of the faculty and will devote a portion of his efforts to teaching and research.

Since 1949, Dr. Miller has been on the faculty at Carleton College, where he is presently professor and chairman of the department of chemistry.

A. J. Miller

Continental Can Co.

William M. Cameron and Charles B. Stauffacher have been elected to the board of directors. Cameron is executive vice president of Continental's Glass & Plastics Operations Group. Stauffacher has been executive vice president in charge of the Robert Gair Paper Products Group.

Samuel F. Downer has been elected to the position of secretary of Continental. Downer had been vice president of the Exchange National Bank in Colorado Springs, Colorado.

Brookshire C. Moore has been appointed to the position of paper mill superintendent at the company's bleached sulfate paperboard mill now under construction at Augusta, Ga. Charles Ray, at the same time, was appointed as pulp mill superintendent at the same mill.

Charles Swerdlove has been named manager of Continental's Chicago folding carton plant. He had been serving as assistant manager at the Chicago plant since April of last year. He will replace V. J. Porth, who is retiring after being in the folding carton field since 1911.

C. B. Stauffacher

W. M. Cameron

C. Ray

S. F. Downer

B. C. Moore

W. R. Tucker

Gulf States Paper Corp.

Robert L. Yoder has been appointed manager of the corporation's Demopolis plant. Yoder was formerly operations manager at the Tuscaloosa mill. He will succeed Henry P. Halsell as resident manager. Halsell returned to Tuscaloosa on special assignment for the president of Gulf States.

Warren R. Tucker has been promoted to the position of operations manager of the Tuscaloosa mill. He will be in charge of all production activities of the pulp, paper and converting mills, the three mills which make up the Tuscaloosa plant. Tucker will replace Robert Yoder.

R. L. Yoder

A. E. Staley Mfg. Co.

Earl H. Schrader has been named manager of the company's Kansas City industrial product sales office. He joined Staley in 1936 as a special products salesman, moved up as senior salesman and district sales manager, and has been assistant branch manager at Kansas City since 1952.

Byron L. Fast has been appointed as manager of the process service section. The special process service section was set up at Staley's last April for further engineering developments and service to plants across the country making use of the advanced Staley systems. Fast has been production engineer in the special engineering and service organization.

Wendell D. Ray has been named as industrial sales manager. For the past two years, he has been branch manager of the company's Boston office.

George M. Donelan, who has been assistant manager of the company's Cleveland office for the past three years, will succeed Ray as manager at Boston.

Donald A. Dempsey has been appointed as paper technical sales representative in the southeastern states. He will succeed William C. Gallager, who was recently named southern regional manager.

W. D. Ray

D. A. Dempsey

Chicago Bridge & Iron Co.

Edward S. Fraser has been elected as vice president of manufacturing. He has been in charge of the company's manufacturing operations for the past six months. He previously served as assistant general sales manager of the company, manager of its Salt Lake City plant and as an engineer in Chicago.

Morden Machines Co.

Walter J. Kotchik has been promoted to the position of coordinator of sales and service. His new position entails a wide range of functions relating to preparing sales proposals and overseeing Morden customer services. He was previously associated for two years in the company's design and development department.

Champion Paper & Fibre Co.

Temporary reassignments in top management posts at Champion have been made following the recent election of Dwight J. Thomson as chairman of the board and Karl R. Bendetsen as president.

Leo Geiser, formerly vice president and general manager of the Ohio Division, will serve as acting group executive of the operations group.

Earl Jones will be acting Ohio Division manager during Geiser's assignment to the general office post.

Benjamin V. Wright, vice president of finance, has been assigned additional duties as acting group executive of converting products group.

Karl R. Bendetsen, in addition to his job as president, will fill the position of executive vice president, of the printing products group.

The following six new men have joined the research and development division in Hamilton, Ohio.

C. P. Donofrio as manager of pulp research and development; Donald Hoes Jr. as patent attorney; David Nowak as research engineer, coating department; Ned Downs as associate research engineer, engineering department; George Morley, senior draftsman, engineering department; and Robert Connaughton as senior draftsman in the engineering department

J. M. Huber Corp.

Frank P. Steitz has been named to head the Industrial Products Department of the Huber Corp. The company has opened new offices at 12915 Memorial Drive, Houston, Texas. The office will service customers in the rubber and paper industries in the southwest and part of the middlewestern states. Steitz was previously located at Huber's Chicago office.

The industrial Products Department which was located in Boston, has now moved to 123 Water St., Watertown, Mass. Vincent Casey will continue to head sales of Huber products to the rubber industry and Maurice McGrath will handle the sales to the paper industry.

John W. Bolton & Sons Inc.

Paul A. Halas has joined the sales staff of the Machine Knife Division in Lawrence, Mass.

He will cover the territory including Chicago and most of Illinois, Wisconsin, sections of Indiana, Minnesota and Iowa.

Jefferson Chemical Co.

Walter P. Krause has been named supervisor of the plant and sales technical service section of Jefferson. In this position he will be in charge of customer service work requested by the marketing department as well as experimental work designed to assist the manufacturing department in solving plant problems.

Midland-Ross Corp.

George Drexell Carr recently joined the pulp and paper mill sales staff of J. O. Ross Engineering Division of Midland-Ross. He will team with K.

From ALBANY FELT.....

felt facts

"Locked In" Protection Against Bacterial Damage with . . .

W-6

CHEMICAL TREATMENT

Bacterial damage may be a serious problem in felt operation.

Some time ago, our research department developed a great many bactericidal formulas and finally created an entirely new treatment we named W-6.

The effectiveness of W-6 lies in the fact it is "locked in" chemically in the felt fibres and is designed to provide permanent protection against bacteria attack for weeks . . . even months.

Equally important, the addition of W-6 does not affect the sheet nor the operating characteristics of the felt.

If you have a bacteria problem . . . or even suspect one . . . why not investigate the Albany Felt W-6 chemical treatment?

LABORATORY ANALYSIS

Laboratory examination is the only way you can determine if your felts are being damaged by bacteria. Our Customer Service Laboratory is available to you for this analysis.

Have our Sales Engineer send samples of your used felts and we will provide you with a written report of our findings.

TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER

AF

ALBANY FELT COMPANY

ALBANY, N. Y.

World's Largest Manufacturer of Paper Machine Felts

For more data circle 126 on Post Card

W. M. Dixon

H. E. Green

E. K. Meier

L. H. Schoenhofen

Container Corp. of America

Wesley M. Dixon, president of Container, has been named chairman and chief executive officer of the packaging organization. He will succeed the late Walter P. Paepcke, founder of the company, who died on April 13.

Other action taken by the board was the election of Leo H. Schoenhofen, senior vice president, as a director; Harry E. Green, general counsel, as vice president and general counsel; and Edward K. Meier as secretary.

The following appointments have been announced by Ralph Eckerstrom, director of the department of design, advertising and public relations:

Kenneth D. Myers, formerly assistant advertising manager, is appointed manager of public relations. John V. Massey, formerly manager of graphic design, is appointed manager of the department of design. William L. Dempsey Jr., formerly market development and promotion manager of the folding carton division in Philadelphia, is appointed manager of trade advertising and product publicity with headquarters in Chicago. Rhoades Patterson, formerly assistant advertising manager, is appointed manager of film and copy.

Container has also announced the appointment of Clinton Eastwood as a general sales manager of its Corrugated Shipping Container Division, and Raymond H. Van Suan to succeed Eastwood as general manager of the company's Oakland, Calif., shipping container plant.

H. Jones, P. Goldner and C. J. Guischard in forming a complete pulp and paper mill sales staff in the New York office.

A. Justin Smith, formerly sales engineer for Ross Midwest Fulton division of Midland-Ross, will now assume his newly elected position as sales manager for the division.

Southwest Forest Industries Inc.

Joe D. Cox has taken over his new duties as vice president and manager of the firm's newly formed container division in Glendale, Ariz.

Cox was formerly from Fullerton, Calif., where he was sales manager for Growers Container Division of St. Regis Paper Co.

Union Bag-Camp Paper Corp.

The following top-level executive changes were announced recently by Union Bag-Camp:

Alexander Calder, former chairman of the board and chief executive officer, has been named honorary chairman of the board.

Alexander Calder Jr., president, has become chief executive officer and will continue as president.

Hugh D. Camp, formerly executive vice president for finance, has been elected chairman of the board.

James L. Camp Jr., was named chairman of the executive committee. He had been vice chairman of the board.

Layne & Bowler Inc.

John M. Proos has been elected as the chairman of the board, and Frank T. Quinn as the new president of Layne & Bowler.

With this new advancement, Proos will remain in his capacity as vice-president of Layne-Northern Co. Inc., which is an associate company of Layne & Bowler Inc.

Quinn, previous to his new appointment, had been serving as vice president in charge of manufacturing since 1957.

F. T. Quinn J. M. Proos

Beloit Eastern Corp.

The following executive appointments have recently been announced:

B. L. Hammill has been appointed as sales manager; W. D. Markowski has been named manager of winder sales; and H. R. Patterson has been named chief engineer of the Pennsylvania firm.

In making this announcement William S. Wood, president of the Beloit Eastern Corp., stated that this specialization at Beloit Eastern Corp. will offer greater sales and technical services to Beloit customers.

Packaging Corp. of America

The following three new vice presidents were named to head the eastern, central and western paperboard operations.

Henry B. Weis of Quincy, Ill., was named vice president of the paperboard division—western region.

Gordon B. Bonfield Sr. of Grand Rapids, Mich., was named vice president of the paperboard division—central region.

E. L. Stentz of Watsworth, Ohio, was named vice president of the paperboard division—eastern region.

S. D. Warren Co.

The following men have recently been elected as officers of the company: Rudolph T. Greep as vice president; Frank W. Roberts Jr. as vice president; and Joseph J. Wyand as assistant treasurer.

The company also announced that Robert W. Hisey has become chief engineer of the Cumberland mills located in Westbrook, Maine.

Alfred A. Mann will assume Hisey's former duties as technical service director. Howard W. Stevens continues as plant engineer.

Valley Iron Works Corp.

George Reynolds, chief engineer, has announced the appointment of three new engineers to the position of staff engineers. They are: J. T. Strachowski, Howard K. Ainsworth and O. N. Ellman Jr.

Perkins-Goodwin Co.

Myer M. Donosky has recently joined Perkins-Goodwin and will act in an advisory capacity to the staff of the sales office in Texas, which will continue to be located in Lufkin under the supervision of Lloyd G. Schenck. Donosky will be headquartered in Dallas, Texas.

It was also announced that George R. Newcombe, formerly director of sales research, has been appointed newsprint sales manager of the company's Lufkin office.

Necrology . . .

Thomas D. Currie

Thomas D. Currie was president of Dixie Cup Co. (Canada) Ltd. He founded the Vortex Cup Co. of Canada Ltd., which in 1927, joined with the Dixie Cup Co. Since his retirement in 1958, he was engaged in overseas assignments with the American Can Co., a major shareholder of Dixie Co.

Jacques Suraud

Jacques Suraud had been manager of European sales of Rayonier Inc. and an officer of several of the chemical cellulose producer's marketing subsidiaries. He died after a long illness in Paris, France. He was also active in West European trade associations of the chemical, man-made fiber and allied industries.

Russell Ray Brewer

Russell Brewer, a leading figure in the paper trade field, died after suffering injuries in an accident. He was owner-manager of the Brewer-Chilote Paper Co. and vice president of Chilote Co. He was also owner of Brewer Greeting and a director of Paper Converters Inc.

Sidney J. Whelen

Sidney Whelen, who had been salesman for many years for Shuler & Benninghofen, died April 21 at his home in Norwood, Ohio. He served Shuler & Benninghofen in Pennsylvania, New Jersey, Virginia, Maryland and North Carolina until his retirement.

Malcolm S. Black

Malcolm Black, who had served as secretary-treasurer and a director of Union Bag-Camp Paper Corp. for 19 years before his retirement last December, died April 13.

Herbert W. Suter Jr.

Herbert Suter, who had served as vice president of marketing for Champion Paper & Fiber Co., was widely known in the paper industry and served with many industry groups. In 1959 he was named vice president of marketing, and vice president of paper distribution division. In directing the sales activities of the firm, he had followed in the footsteps of his father, Herbert W. Suter, who

(Continued on page 235)

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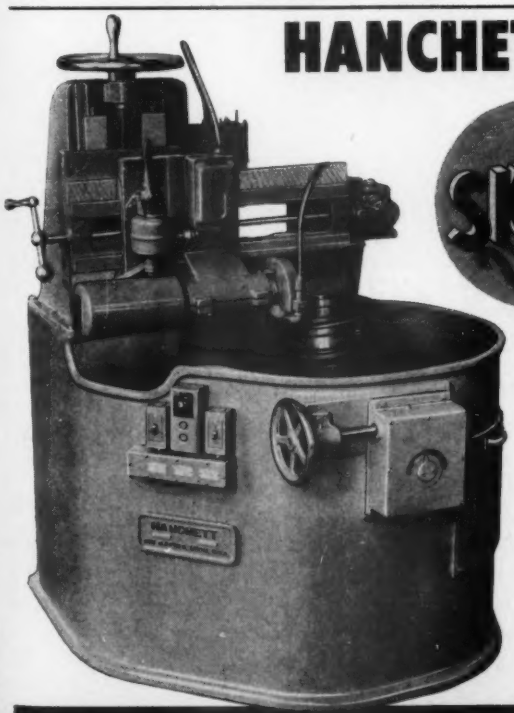

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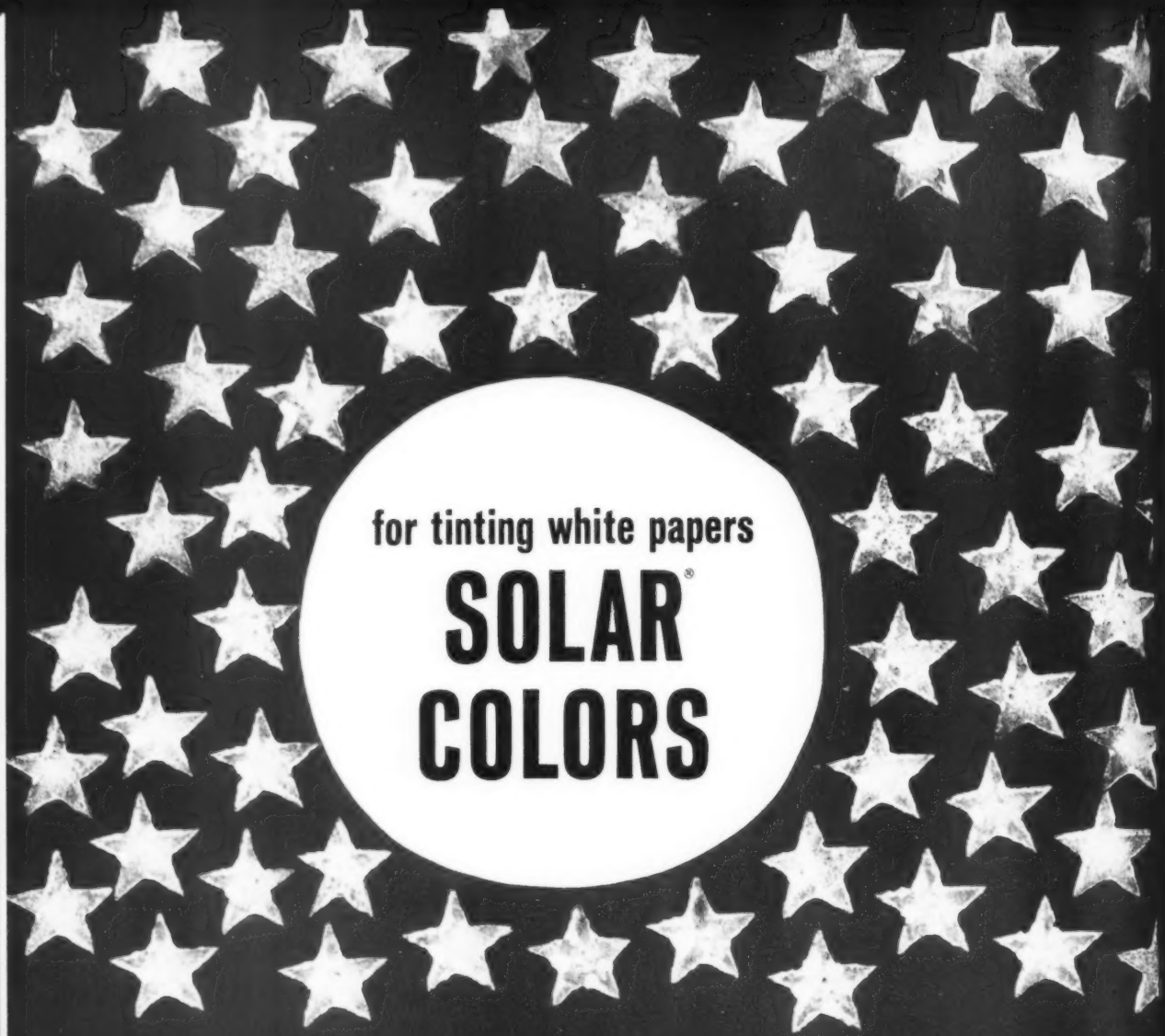

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SAFETY NEWS

1959 NSC Pulp and Paper Contest Shows 2-Per Cent Rate Increase

Competing mills in the 1959 National Safety Council contest for pulp and paper firms have reported an accident frequency rate of 2 per cent above that of 1958. (Not included in this figure is the Pulpwood Logging Division, which showed a decrease of 7 per cent.

Out of 689 contestants that completed the contest, 100 contestants maintained perfect scores.

The year's frequency rate for all divisions (except pulpwood logging) was 7.27 (up 4 per cent); for the pulp and paper division, 6.67 (up 2 per cent); for the paper converting division, 8.53 (up 5 per cent), and for the pulpwood logging division, 33.43 (down 7 per cent).

The total exposure reported was 588,490,000 man-hours, up 2 per cent from 1958. A total of 4,696 injuries was reported, a 7 per cent increase from 1958.

Mills in Group A of Division I (units averaging more than 170,001 man-hours monthly) recorded a 4 per-cent decrease; those in Group B (85,001 to 170,000 man-hours), a 3 per-cent increase; those in Group C (42,501 to 85,000 man-hours), an 8 per-cent increase; those in Group D (21,251 to 42,500 man-hours), no decrease; and those in Group E (6,000 to 21,250 man-hours), a 1 per-cent increase.

In paper converting the paper bag group showed a 4 per-cent decrease; boxes and cartons, a 6 per-cent increase; roofing paper, a 9 per-cent increase; insulation and building board, 1 per-cent increase; and pulp and paper specialties, a 11 per-cent increase.

From the eligible mills in Division I, the board of judges will choose the mill with the most outstanding record. This plant will be awarded the grand prize, the Edward Benton Fritz Memorial Trophy, presented each year by THE PAPER INDUSTRY.

The National Safety Council has listed as follows the mills with the best records in each division—frequency rates in parentheses:

Division I—Pulp and Paper Mills

Group A

Scott Paper Co., Chester, Pa. (.54); P. H. Glatfelter Co., Spring Grove, Pa. (.88); Minnesota Ontario Paper, International Falls, Minn. (.93).

Group B

Consolidated Paper Corp. (Laurentide Div.), Grand Mere, P.Q. (.00); Kimberly Clark Corp., Niagara, Wis. (.56); Consolidated Paper Corp. Ltd. (Belgo Div.) (.62); Munising Paper Co., Munising, Mich. (.73).

Group C

Kimberly Clark Corp., Fullerton, Calif. (.00); Container Corp. of America, Wabash, Ind. (.00).

Group D

Certain-Teed Products Corp., East St. Louis, Ill. (.00); United States Gypsum, Oakmont, Pa. (.00); United States Gypsum Co., Clark Township, N.J. (.00); Crown Zellerbach Corp., Lebanon, Ore.; Crown Zellerbach Corp. (Gaylord Container Div.), Baltimore, Md. (.00); Bestwall Gypsum Co., Pryor, Okla. (.00); Flintkote Co., Lockport, N.J. (.00); Container Corp. of America, Noblesville, Ind. (.00).

Group E

Johns-Manville Co., Ltd., Asbestos, Que. (.00); Coos Bay Pulp Corp., Empire, Ore. (.00); St. Regis Container Corp. (Muskingum Mill Div.), Coshocton, Ohio (.00); Rogers Corp., Rogers, Conn. (.00); Continental Can Co. Inc. (Robert Gair Div.), Middleton, Ohio. (.00); Flintkote Co., Little Ferry, N. J. (.00); Robertson Paper Box Co. Inc., Montville, Conn. (.00); Spruce Falls Power & Paper Co. Ltd., Kapuskasing, Ont. (.00).

Container Corp. of America, Wilmington, Del. (.00); Reigel Paper Corp., Riegelsville Plant (.00); Celotex Corp., Avery, Ohio (.00); National Gypsum Co., Newburgh, N. Y. (.00); Johns Manville Corp., Tilton, N. H. (.00); International Paper Co., Livermore Falls, Me. (.00); International Paper Co., Riley, Me., (.00); Container Corp. of America (Western Container Div.), Tacoma, Wash. (.00).

Division II—Paper Converting

Paper Bags

St. Regis Paper Co., Nazareth, Pa. (.00); St. Regis Paper Co. Ltd. Vancouver, B. C. (.00); Pillsbury Mills Inc., Wellsburg, W. Va. (.00); St. Regis Paper Co., Playa Ponce, P. R. (.00).

Boxes and Cartons

Group A

General Foods Corp. (Carton & Container Div.), Battle Creek, Mich. (.00); Crown Zellerbach Corp. (Gaylord Container Div.), Baltimore, Ohio; (.00); Container Corp. of America (Boston Carton Div.) (.00); Consolidated Water, Power & Paper Co. (.00).

Group B

Dairypak Inc. Cleveland, Ohio (.00); International Paper Co., Kansas City, Kan. (.00); Owens-Illinois Glass Co., Jacksonville Box (.00); Container Corp. of America, Chattanooga Container Div. (.00); Owens-Illinois Glass Co., Bradford Box (.00); Superior Paper Products, York Co. Pa. (.00); Pollock Paper Corp., (Folding Box Plant), Dallas, Texas (.00); Crown Zellerbach (Gaylord Container Div.), Milwaukee, Wis. (.00); Crown Zellerbach (Gaylord Container Div.), St. Louis (.00); Container Corp. of America Santa Clara, Calif. (.00); Owens-Illinois Glass Co., Atlanta Box (.00); Container Corp. of America (Container Div.) Chattanooga, Tenn. (00); Container Corp. of America, Baltimore Md. (.00); Wilson Paper Box Co. Inc., Richmond, Va. (.00); Container Corp. of America, Boston Container Div. (.00); Container Corp. of America, Renton, Wash. (.00); Pollock Paper Corp. (Folding Box Plant), Dallas, Texas (.00); Dairypak Inc., Athens, Ga. (.00); Olin

(Continued on page 235)

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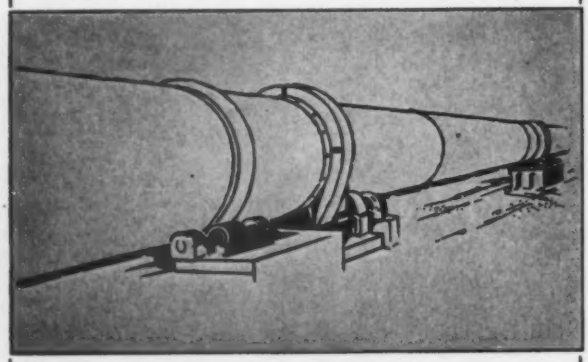

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FOREIGN ABSTRACTS

Shive removal from halfstuffs

Equipment serving to remove shives from wet stock appears to be gaining in importance. The present authors, at the Technische Hochschule at Darmstadt, Germany, made an intensive study of the Escher-Wyss refiner (termed "de-shiver") to determine the effects of its operating conditions on output, shive-removal, and power consumption.

The materials that were used, with their initial shive content given in parenthesis, were: a newsprint (15%), mixed waste paper (20%), art paper stock (42%), straw pulp (49%), pergamin paper stock (52%), a mechanical pulp (61%) and a Hollerith board stock (65%). Even with a stock exceedingly high in shives, 2 to 3 passages through the de-shiver caused completed or nearly complete shive removal. This is shown in the half tones of Fig. 1, in the case of Hollerith board; here the cut on the left shows the original stock and the one on the right illustrates the effect of two passages through the E-W equipment. A similar effect is shown in Fig. 2, which illustrates the changes in the straw pulp. Graphs also serve to show quantitatively the extent to which shives were removed from the various fibrous materials. The authors determined the most favorable working conditions for each material, and they conclude that the E-W equipment permits shive removal effectively with a relatively low power consumption.

Walter Brecht and Günter Mickley. *Das Papier* **14**, 52 to 55; 91 to 96 (1960) (in German).

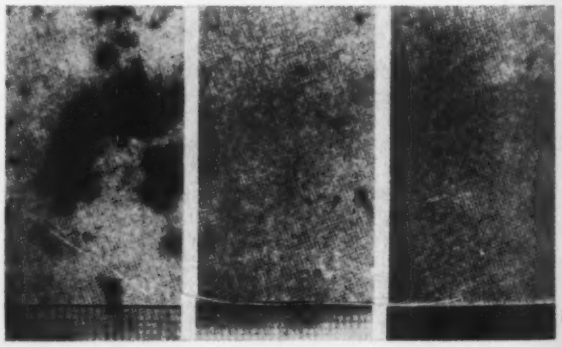

Fig. 1

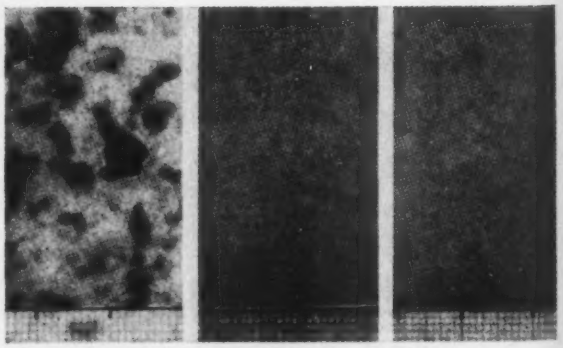

Fig. 2

Automation in the paper industry

In a comprehensive, well illustrated article, the author shows how production in presently existing mills can, under certain circumstances, be improved by modern installations which can control and regulate various operations in the production of paper. The following examples are given: automatic control in pulping operations, in the bleaching of groundwod pulp, in distribution of stock, and in the automatic control (or disconnection) of various

drives of the constant parts of the paper machine. Improvement by thoughtful planning is stressed, but the author also warns that under certain conditions, such auxiliary installations may be uneconomical, and may increase costs beyond reasonable limits.

Twenty three figures. Karlheinz Lambeck. *Das Papier* 14, 41 to 51 (1960) (in German).

Influence of bark on hardboard quality

The effects of adding the bark of eight different wood species, on the properties of wet-process hardboard were studied. The species used in the investigation included red pine, cedar, fir, spruce, beech, poplar, birch and linden. Mixtures of wood and bark containing zero, 10, 30 and 50 per cent bark were used, and experiments with 100 per cent bark were also made.

These mixtures (or the separate components) were pre-steamed for four min. and then fiberized in a laboratory Asplund defibrator for one minute under 10 kg/sq. cm. steam pressure. The pulps were refined in a Sprout-Waldron laboratory refiner and made into sheets (23 by 23 cm.) without use of a sizing agent, and pressed to about 1/8 in. thickness at 180°C. Approximately 70 to 90 per cent of the bark components remained in these pulps, but as the original bark content increased, the pulp yields dropped. On the other hand, as the bark content increased, power requirements used in fiberizing (and more especially in refining) were reduced. Such power savings were greater for softwood than for hardwood barks.

Excepting in the case of fir and spruce, no difficulties were encounterred when the pulp mixtures contained less than 30 per cent bark. Fir and spruce showed a sharp rise in freeness when the bark additions were above 10 per cent. Except for linden and cedar, pulps made from 100 per cent bark fiber could not be pressed; dewatering difficulties were encountered and fibers adhered to the caul plate and the back screen in the hot press. When there was an increase in bark content, the modulus of rupture on bending was lowered, excepting that of linden hardboard, which was not affected even when as much as 50 per cent bark was added. This is probably due to the strong phloem fibers in linden. As the bark content increased, water repellancy was lowered in cedar and fir, but it was slightly improved in case of hardwood boards and markedly improved in red pine hardboards.

T. Murata and N. Takamura. *J. Japan Wood Research Soc.* 5, No. 5, 194 to 199 (Oct. 1959) (in Japanese with English summary) through *Abstr. Bull. Inst. Paper Chem.* 30, 950 to 951 (1960).

High capacity wet separators

The installation of such separators in the stock preparation system of pulp mill is discussed in this pamphlet. Advantages of wet separators of the high capacity type (termed HNS) and of the disk-refiner type (SNS) are discussed together with methods used in their installation, control, and general operation.

The value of adding wet separators, usually directly following or just before the vibrating screen, include the following: savings in water, lowered power consumption, less space and personnel demands, reduced attendance, maintenance and downtime. There is also a reduction of knot rejects and of shive content in acceptable stock, as well as better fiberization and increased yields of high quality pulp. The separators also appear to improve the utilization of the sorters. Many flow charts are given.

Fritz Heese. "Installation of high capacity wet separators in the stock preparation system of pulp mills" *Graz, Austria; Akad Druck-u. Verlagsanatalt* (1959) 25 pp. (in German) through *Abstr. Bull. Inst. Paper Chem.* 30, 955 (1960).

Creped electrical insulation paper in Latvia

Recently, the "staitsele" paper mill began its production of creped insulating paper, thus providing a substitute for textile-base insulating material in high voltage transformers. Unbleached kraft pulp is used, fiberized to a freeness of 20 to 22°. Schopper-Riegler (S.-R), and then beaten to 38 to 42° S-R. The paper is formed on a yankee machine at a wire speed of 35 to 38 meters per min. and a drier speed of 15 to 17 m. per min. The drying temperature is 85 to 90° C. using a steam pressure up to 1.5 atm. on the large drying cylinder and up to 27.5 atm. on the second cylinder. At the basis weights of 100,120 and 150 g./sq. m., the paper has a crepe thickness of 0.45, 0.53, and 0.55 mm. and a volume weight of at least 0.65, 0.70, and 0.75 g./cu. cm., respec-

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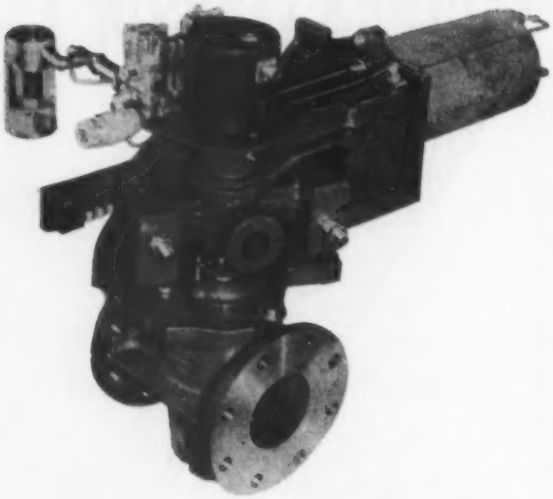

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tively. The respective tensile strengths are also given. The crepe paper stretch is 60 per cent and the moisture content is about 7 per cent.

A. Ostrerovs. *Narodnoe Khoz. Sov. Latvii* **No. 9,** 44 to 5 (1958); referred to in *Zhur Khim.* **No. 11,** 523 to 524 (1959) (with only the Russian Abstract available) through the *Abstr. Bull. Inst. Paper Chem.* 30, 915 (1960).

Lignin in semichemical pulps

The authors report a more rapid method for the determination of lignin in sixteen different semichemical pulps. They also correct a slight error in a previously reported determination of lignin; [cf *Das Papier* 12, 465 (1958)]. The present method is carried out as follows: one half gram of extractive-free, Wiley-milled pulp is stirred with 8 milliliters of a 6:1 mixture of sulfuric: phosphoric acid, heating the homogenized suspension 45 minutes at 35°C., and adding the mixt. to 200 ml. water, boiling for one half hour, and filtering the hot suspension through a dry, weighed No. 589, Schleicher and Schüll "Blauband" filter paper.

The precipitate on the paper is washed with a very dilute solution of sodium chloride, and the paper and lignin is dried to constant weight. As a control, an identical filter paper is taken through the same operation in the absence of the lignin, and any loss in weight is recorded; due correction is made in the determination not only for this loss in the paper, but also for residual ash. The lignin is then determined by subtracting the corrected dry weight of the paper from the weight (of corrected) paper plus lignin. Pulps made from acacia, beech, eucalyptus, pine and aspen when analyzed for lignin by this rapid method all showed excellent precision is replicate determinations.

Georg Jayme and Gerda Rapp. *Das Papier* 13, 607 to 608 (1959) (in German).

Gas permeability of cellophanes

The permeabilities of unlacquered cellophane (containing 15-per cent glycerol), of cellophane lacquered with nitrocellulose, and of a combination foil containing both cellophane and polyethylene were studied, at various relative humidities (R.H.) which ranged from zero to 92 per cent. The gases used were carbon dioxide, oxygen and nitrogen.

The foils were most permeable to carbon dioxide and least permeaable to nitrogen. As the humidity of the foil increased, gas permeability rose sharply, and this was most evident in the case of unlacquered cellophane, which was nearly gas-proof at zero deg. R.H. at 20 deg. C. and then became highly permeable at high R.H.

The permeabilities at middle and high R.H. decreased markedly when the cellophane was lacquered with nitrocellulose, but was not helped by additional polyethylene excepting at the higher R.H.; and at lower R.H.'s the permeability was actually higher. The relatively high gas permeability of the cellophane-polyethylene foil is discussed, and may perhaps be attributed in part to the stresses and pressure strains exerted by the polyethylene portion of the foil.

Norbert Buchner. *Das Papier* 14, 123 to 130 (1960) (in German).

Studies in high yield pulping

Spruce chips were pulped in a laboratory digester by the kraft process. Conditions were varied, and the cooks were kept at the maximum temperatures (*i.e.* at 165 or 170°C.) for 15, 25, 35, 55, and 70 minutes, using liquors containing 18, 20 or 25 per cent active alkali. The shorter the digestion at maximum temperature, the higher was the pulp yield. *E.g.*, at 170° with 20 per cent active alkali, the yield dropped from about 74 per cent after 15 minutes, to 53 per cent, after 70 minutes. High yield pulps obtained at 165° maximum, using either 18- or 20-per cent alkali were very similar in their properties to ordinary kraft pulps, but the high yield pulps obtained at 170° maximum, using 20 per cent active alkali, showed lower breaking lengths, but higher folding endurance than did ordinary kraft pulps.

Following these orienting laboratory experiments, mill runs were made with spruce wood containing 13.3 per cent moisture and 51.8 per cent cellulose, 29.5 per cent lignin, 7.2 per cent pentosans, one-per cent ether extractives and 0.6-per cent ash. In these runs, however, a 19:4 (volume/volume) ratio of black liquor to white liquor was used. The liquor had 81.5 per cent causticity and 9.8-per cent sulfidity, and sufficient make-up caustic

and sulfur were added to obtain nearly 90-per cent causticity and 24-per cent sulfidity. The heat-up time was 130 minutes and the time at maximum temperature was only 10 minutes. The overall coating operation, including relief, and blowing and discharge of the digester, was 2-3/4 hours.

Following this was a shortened diffuser wash of 6 hours instead of the usual 13 hours. Disk refining was carried out at 1.28 per cent consistency. By this modified pulping schedule, pulp yields were 65 per cent or higher; the lignin content was only slightly higher and the cellulose content (and α-cellulose content) were only slightly lower than those found in the commercial kraft pulps. In previous commercial pulping operations, the latter required a total digestion period of about 4 hours, with 1 hour and 25 minutes at maximum temperature and a long washing period. The physical properties of the two types of pulp were very similar.

However, the pulps obtained by using the shorter schedule had a slightly lower breaking length and a markedly lower folding endurance, when beaten to 32° Schopper-Riegler at 3.3 per cent consistency. When the modified pulp was beaten 90 minutes to 28° S-R. at 0.48-per cent consistency, its breaking length was 7245 meters, and it showed an endurance of 690 double folds.

V. Diaconescu, E. Poppel, G. Nichitus, E. Weiss, E. Calistru, D. Feldman, C. Matase, N. Asandei, G. Rozmarin, and C. Simionescu. *Bul. inst. politeh, Iasi,* (N.S.) 4, (8), No. 1 to 2, 213 to 226 (1958) through *Abstr. Bull. Inst. Paper Chem.* 30, 1061 (1960). (original in Rumanian with Russian and German summaries).

Corrosion due to black liquor and its vapors

A study was made of the corrosion of five different grades of steel used in evaporator tubes. These were "killed" and "rimmed" carbon steel, a 5-per cent nickel steel, an 18/8 chrome-nickel steel and a 13-per cent chrome steel. Each of these was exposed to the corrosive action of the black liquor itself, and to black liquor vapors. Certain treatments were also given the black liquors. The rate of vapor phase corrosion was studied both in the case of oxidized and unoxidized black liquors, and in the vapor phase in which 1-per cent oxygen had been added (even though the liquor itself was not directly oxidized). Corrosion was studied as a function of the sodium sulfide content of unoxidized liquor. In the case of such liquors, the rate of corrosion was much higher in the vapor than in the liquid phase.

When the liquor had been oxidized, the vapor phase caused less corrosion; but, when oxygen was introduced into this vapor, corrosion increased. With unoxidized black liquor, vapor phase corrosion was initially quite rapid, then decreased as a protective layer of ferrous sulfide was formed on the tube surface, but increased again when this layer started to peel off. Both in the liquid and in the vapor phase, corrosion increased as the percentage of sulfide increased. Rimmed and killed steels were quite sensitive to corrosion and showed very similar behaviors.

The 5-per cent nickel steel was attacked far less in the vapor phase than were the carbon steels, but in the liquid phase it showed its superiority only when the sulfide concentrations were quite high. The 13-per cent chrome and the stainless steel were very resistant to attack in both phases. There was a marked decrease in vapor-phase corrosion by the addition of a film-forming amine inhibitor.

L. Stockman and A. Tansen. *Svensk Paperstidn.* 62, 907 to 914 (1959) (original in Swedish with English and German summaries); through *Abstr. Bull. Inst. Paper Chem.* 30, 1164 to 1165 (1960).

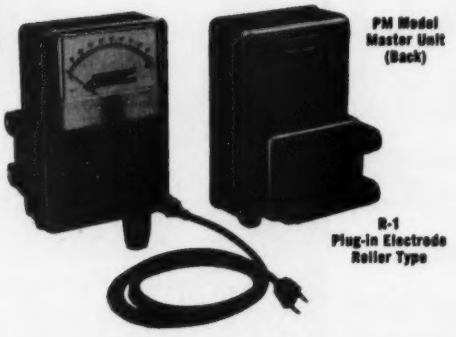
Poplar pulps for writing and printing papers

Indian poplar wood (*Populus ciliata*) was cooked by the kraft process giving good yields of easily bleached pulp with satisfactory strength properties. In these digestions, carried out at 153°C., 22 to 24 per cent total chemical was used (on the oven-dry wood basis). Commercial manufacture would probably require the addition of longer-fibered material (*e.g.* bamboo pulp) in producing paper suited to writing and printing purposes.

S.R.D. Guha and G.M. Mathur, *Indian Pulp and Paper,* 14, No. 3, 173 to 174, 176 (1959) through *Abstr. Bull. Inst. Paper Chem.* 30, 1052 (1960).

The Foreign Abstract (May) p. 136, entitled "Effects of heating pulps, etc." should be corrected to read as follows: "Effects of beating pulps separately and in admixture."

NEW INSTANT MOISTURE CHECK ON MOVING ROLLS



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PATENT REVIEWS

DR. MELVIN NORD

Coated paper

U. S. 2,920,979, issued Jan 12, 1960 to Lawrence J. Hessburg and Gayle L. Rengel and assigned to Minnesota Mining & Mfg. Co., describes a paper sized with fluorocarbon agents on one side and coated on the opposite side with a water-insoluble thermoplastic coating composition (e.g. wax or asphalt) applied from a hot melt, which does not objectionably strike through the paper as it would have if the paper had not been sized.

Contrary to expectation, it was found that a much superior resistance to penetration occurs when the hot melt composition is applied to the untreated side of the paper rather than to the treated side.

Production of colored coated board of imprinting

U. S. 2,920,991, issued Jan. 12, 1960, to Harry C. Fisher and Logan W. Mather and assigned to Diamond National Corp., describes a process for the manufacture of colored, numeral coated paper or paperboard of the type in which the coating is applied in a very thin layer to the surface of the web by imprinting.

In Fig. 1, the board coming from the multi-cylinder board machine is indicated by the numeral 1 and is shown as passing under

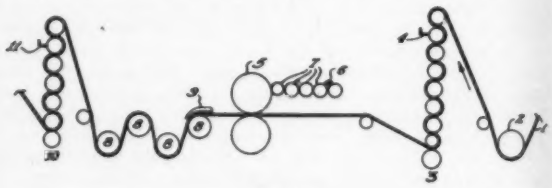

Fig. 1

the last of the board machine driers indicated at 2. The product next passes through a breaker stack of calender rolls 3 having at least one water box 4 where the color application is made. The board next is imprinted by the roll 5 with a very thin layer of the mineral-adhesive coating composition, this composition 6, being applied to the imprinting roll 5 by a series of transfer rolls 7. If a plasticizing solution has been used on the breaker calender stack, the imprinting is done during a persistence of the plasticizing effect, i.e. before the plasticized surface of the board has completely dried. Next, the treated board is dried by a combination of roll driers 8 and an air blast 9, after which it is passed through a finishing calender stack 10, preferably having at least one water box 11.

Production of Pulp from Animal Plants

U. S. 2,921,880, issued Jan. 19, 1960, to Louis Grand, describes a process for producing paper pulp from animal plants such as bagasse by total chlorination of the wood lignin. Following a treatment with a hot, weak aqueous solution of sodium hydroxide to remove resins and greases, the finely divided material is treated with a chlorinating solution for 3 to 7 minutes, at atmospheric temperature and pressure, at a pH of 3 to 3.5. This pH prevents degration of the cellulose. The chloro-lignins are then removed by treatment with a weak alkaline solution.

Two-stage bleaching process

U. S. 2,920,011, issued Jan. 5, 1960, to Ernest F. Eilers, Jr. and assigned to Waldorf Paper Products Co., describes a two stage hypochlorite-peroxide pulp bleaching process. The pulp is first bleached in the usual manner to increase the brightness of the stock to some extent, but it does not remove the shives or fiber bundles usually present in the pulp. The pulp is then subjected to a peroxide second stage bleach under elevated temperatures and pressures. The peroxide second-stage bleach removes the shives or fiber bundles and increases the brightness of the finished sheet to a marked degree.

Manufacture of wood pulp

U. S. 2,920,010, issued Jan. 5, 1960, to Eugene G. Voiret, describes a semi-chemical process for the manufacture of pulp from unselected and untreated deciduous wood. The wood material is cooked with a sodium sulfite solution containing a small percentage of sodium hydrosulfite and of sodium oxalate under such conditions that the final pH value of the solution is between 5 and 7. The cooked material is then mechanically reduced to pulp.

Production of laminated hardboard product

U. S. 2,924,548, issued Feb. 9, 1960, to William A. Cotton and assigned to Masonite Corp., describes a process for the production of two-ply laminated hardboard articles, containing a major proportion of hydrolyzed redwood fiber.

In Fig. 2, the numeral 10 is a traveling wire screen of a fourdrinier machine 11 upon which an aqueous fiber slurry is flowed to form the wet lap 12. Additional water is flowed onto the upper surface of the wet lap 12 from the weir 14. Thereafter, the wet lap passes over the suction boxes 16 and between the pressure rolls 18. The partially dewatered lap is then traveled through a

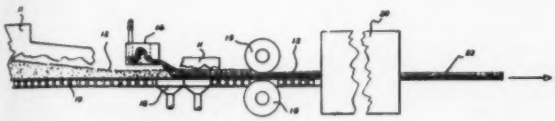

Fig. 2

Fig. 3

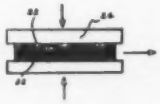

Fig. 4

Fig. 5

conventional drier 20 and emerges therefrom as the dried lap 22. Two of these dried laps 22 are arranged, as shown in Fig. 3, with their bottom surfaces in contact with each other. The laps 22 are then placed in the press 24, shown in Fig. 4, and consolidated to produce the laminated hardboard product 26 illustrated in Fig. 5.

The laminated products, having two smooth surfaces, have an average specific gravity within the range of about 1.1 to 1.30, average bond strength of about 250 to 400 p. s. i. and outstanding qualities as regards modulus of rupture and transverse strength properties. These properties are obtained without the employment of any added binding material in or between the plies, in contrast to previous practice in preparing similar relatively low density laminates.

Preparation of glassine papers

U. S. 2,924,538, issued Feb. 9, 1960, to Alfred H. Nadelman and assigned to Allied Chemical Corp., provides a process for preparing a highly grease-resistant glassine type paper of increased density which can be carried out on the regular equipment commonly used in glassine production. An aqueous emulsion of oxidized polyethylene wax is applied to the paper, and the sheet is then "wet calendered" on heated rolls.

Method of supercalendering

U. S. 2,926,600 issued March 1, 1960, to Willard G. Engelhau and assigned to St. Regis Paper Co., provides a method for producing more uniform wear of the soft rolls of rollers or stacks in the supercalendering of paper, particularly as the width of paper changes either because of variable shrinkage in the paper, or because of deliberate changes in the widths being calendered.

It has been found that the ridging of the supercalender rolls, and hence the need for dressing them, can be eliminated by continually oscillating a web of paper being calendered which has a width less than the full width of the soft rolls, so that as the web

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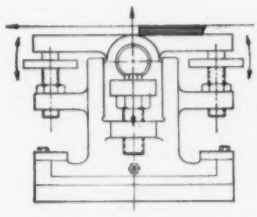

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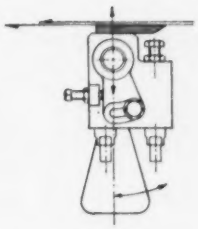

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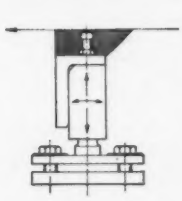

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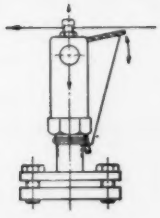

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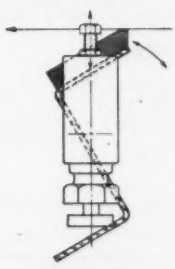

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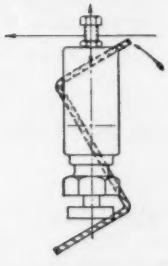

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moves from one axial limit of the roller to the other, the web comes in contact with all of the useful surface of the soft rolls or rollers.

Paper containing an organic fluorescent dye

U. S. 2,924,549, issued Feb. 9, 1960, to Caspar Klein and Ernst Podschus, and assigned to Farbenfabriken Bayer A. G., provides a paper which appears to the naked eye under daylight to be markedly whiter than papers pigmented with titanium dioxide.

This paper is prepared by incorporating in it finely divided, white, amorphous siliceous pigments and an organic dye which fluoresces, emitting blue light.

Pulping of bagasse

U. S. 2,924,547, issued Feb. 9, 1960, to Samuel B. Knapp and James D. Wethern and assigned to Hawaiian Development Co., Ltd., describes a rapid neutral sulfite process for pulping bagasse and other non-woody plant ligno-cellulose.

The present invention is predicated upon the discovery that by carefully controlling the reaction conditions between pre-determined limits, the cooking period required for the neutral sulfite pulping of bagasse and like plant materials may be reduced very materially to an over-all period of not over about 2 hours, as opposed to a conventional over-all period of the order of 5 to 25 hours. The application of such a short cooking period prevents the degradation of the cellulose and at the same time produces a pulp which is exceptionally strong, in part because of its relatively high content of pentosans.

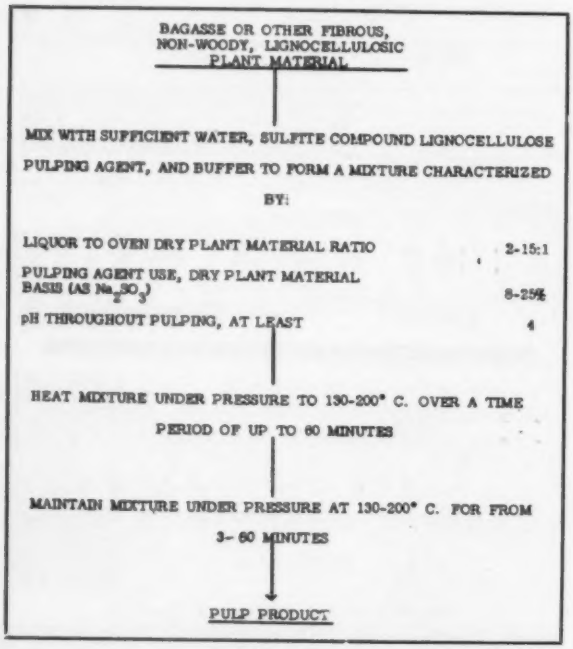
BAGASSE OR OTHER FIBROUS, NON-WOODY, LIGNOCELLULOSIC PLANT MATERIAL
MIX WITH SUFFICIENT WATER, SULFITE COMPOUND LIGNOCELLULOSE PULPING AGENT, AND BUFFER TO FORM A MIXTURE CHARACTERIZED BY:
LIQUOR TO OVEN DRY PLANT MATERIAL RATIO 2-15:1
PULPING AGENT USE, DRY PLANT MATERIAL BASIS (AS Na_2SO_3) 8-25%
pH THROUGHOUT PULPING, AT LEAST 4
HEAT MIXTURE UNDER PRESSURE TO 130-200° C. OVER A TIME PERIOD OF UP TO 60 MINUTES
MAINTAIN MIXTURE UNDER PRESSURE AT 130-200° C. FOR FROM 3-60 MINUTES
PULP PRODUCT

Fig. 6

Also, it produces a pulp which may be bleached readily to a very high brightness value without loss of strength. Still further, it results in a very high production rate because of the short cooking time required. In fact, the process may even be carried out successfully as a continuous process wherein the digestion step comprises a flash heating of the plant material in the presence of the pulping chemicals. The process is shown diagrammatically in Fig. 6.

Wet-strength paper

U. S. 2,926,116, issued Feb. 23, 1960 to Gerald I. Keim and assigned to Hercules Powder Co., describes a method of making wet-strength paper.

The material applied to the paper pulp is an uncured thermosetting cationic resin comprising a water-soluble polymeric reaction product of epichlorohydrin and a polyamide derived from a polyalkylene polyamine and a saturated aliphatic dibasic carboxylic acid containing 3 to 10 carbon atoms. It has been found that resins of this type impart wet-strength to paper whether made under acid, alkaline, or neutral conditions.

Other Patents of Interest to the Pulp and Paper Industry

Subject	Inventor or Assignee	Patent No.	Date
Cleat reinforced paperboard containers	Alton Box Board Co.	2,920,809	1/12/60
Floor stands	Waldorf Paper Products Co.	2,920,852	"
Paper coating composition	Secretary of Commerce	2,920,984	"
Cardboard berry box	Milton W. Alger et al	2,921,729	1/19/60
Handled basket	The Weston Paper & Mfg. Co.	2,921,730	"
Forming a spiral wound paper tube structure	Sonoco Products Co.	2,922,343	1/26/60
Producing hollow articles by dewatering fiber pulp	Leif F. Koxvold	2,922,476	"
Container	Wilbur G. Midnight	2,922,560	"
Cartons	Carton Associates, Inc.	2,922,561	1/26/60
Polygonal carton construction	Fibreboard Paper Products	2,922,562	"
Container	Robert E. VanRosen	2,922,564	"
Top-opening paperboard container	Alton Box Board Co.	2,922,565	"
Closure and carrying means for box-like containers	William W. Wright	2,922,566	"
Sheet feeding equipment	Universal Corrugated Box Machinery Corp.	2,922,643	"
Preparation of laminated paperboard	Diamond Alkali Co.	2,922,729	"
Production of pulping liquor	Texas Gulf Sulphur Co.	2,922,735	"
Manufacture of box elements	Cornell Paperboard Products Co.	2,923,211	2/2/60
Apparatus for molding pulp articles	Diamond National Corp.	2,923,352	"
Container	American Can Co.	2,923,453	"
Carton	National Biscuit Co.	2,923,454	"
Tape red carton with handle	American Can Co.	2,923,455	"
Quick-opening pasted multiwall paper bag	International Paper Co.	2,923,456	"
Rip string heavy duty paper bag	Jiffy Mfg. Co.	2,923,457	"
Forming apertures in molded pulp articles	Diamond National Corp.	2,923,654	"
Prepressing and dividing particle mats	Industrial Development Co. et al	2,923,968 & 2,923,974	2/9/60
Apparatus for crumpling paper	Luber-Finer, Inc.	2,924,154	"
Molded egg carton	Diamond National Corp.	2,924,367-8	"
Cartons	Unipak Carton, Ltd.	2,924,370	"
Carton	William P. Frankenstein	2,924,371	"
Lap tray-container	Lyman D. Dunn	2,924,372	"
Bag with handle	Joseph H. Vineberg	2,924,374	"
One-piece flat bottom paper cup	American Can Co.	2,925,208	2/16/60
Cellular partition	Crown Zellerbach Corp.	2,925,209	"
Heavy-duty container for bulk material	Crown Zellerbach Corp.	2,925,210	"
Carton	William P. Frankenstein	2,925,211	"
Box with manually-releasable latch mechanism	E. I. duPont de Nemours & Co.	2,925,212	"
Polygonal paperboard boxes	Alton Box Board Co.	2,925,213	"
Pulp sheet bundling apparatus	Elk Falls Co., Ltd.	2,925,772	2/23/60
Pulp molding machine	Diamond National Corp.	2,925,863	"
Metered dispensing carton	Stan M. Silver	2,925,943	"
Apparatus for parcelling cartons	The Procter & Gamble Co.	2,925,946	"
Collapsible pallets	Dwight C. Brown	2,925,947	"
Liquid dispensing container	Ex-Cell-O Corp.	2,925,948	"
Folding liquid containers	Burton H. Locke	2,925,949	"
Hat box construction	Modern Millinery Box Corp.	2,925,950	"
Paper bag with integral locking tabs	Equitable Paper Bag Co., Inc.	2,925,951	"
Paper product containing anionic polyamide resin suspensoid	General Mills, Inc.	2,926,117	"
Combined shipping and display case	Gibraltar Corrugated Paper Co., Inc.	2,926,777	3/1/60
Display carton with automatic spring flaps	Mead Containers, Inc.	2,926,778	"
Combined container and display stand	Sunbeam Corp.	2,926,779	"
Combination carrying and display container	Birmingham Paper Co.	2,926,780	"
Cluster pack	Alton Box Board Co.	2,926,781	"
Carrier for cans and handle	Andre-Matic Machinery Co.	2,926,782	"
Liquid-tight carton and liner	Electronic Wave Products, Inc.	2,926,830	"
Infold carton	John Strange Carton Co., Inc.	2,926,831	"
Flat-top paper milk carton	Continental Can Co., Inc.	2,926,832	"

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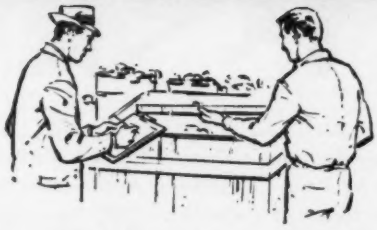

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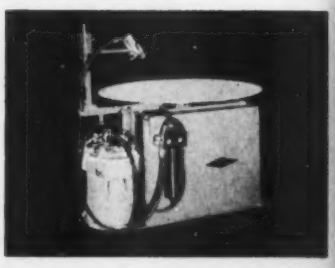
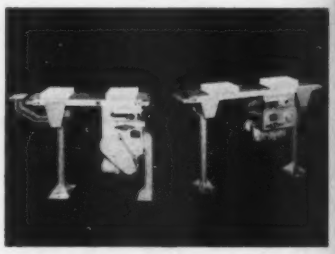


NEW improved design LAMB Head Gluer. Rotating table, adjustable spraying head. Speeds roll wrapping, saves glue, time and manual effort.



NEW LAMB special Ream Conveyors can be engineered to suit your finishing room needs.

NEW LAMB AIRFLOAT Table features continuous air escape through specially shaped holes in table top. Economy design. Stacks of paper float light as a breeze. Self-powered, traveling Skid Stacker shown.

LAMB

LAMB-GRAYS HARBOR CO., Inc.

Hoquiam, Washington, U.S.A. Phone: GEneral 8-1000

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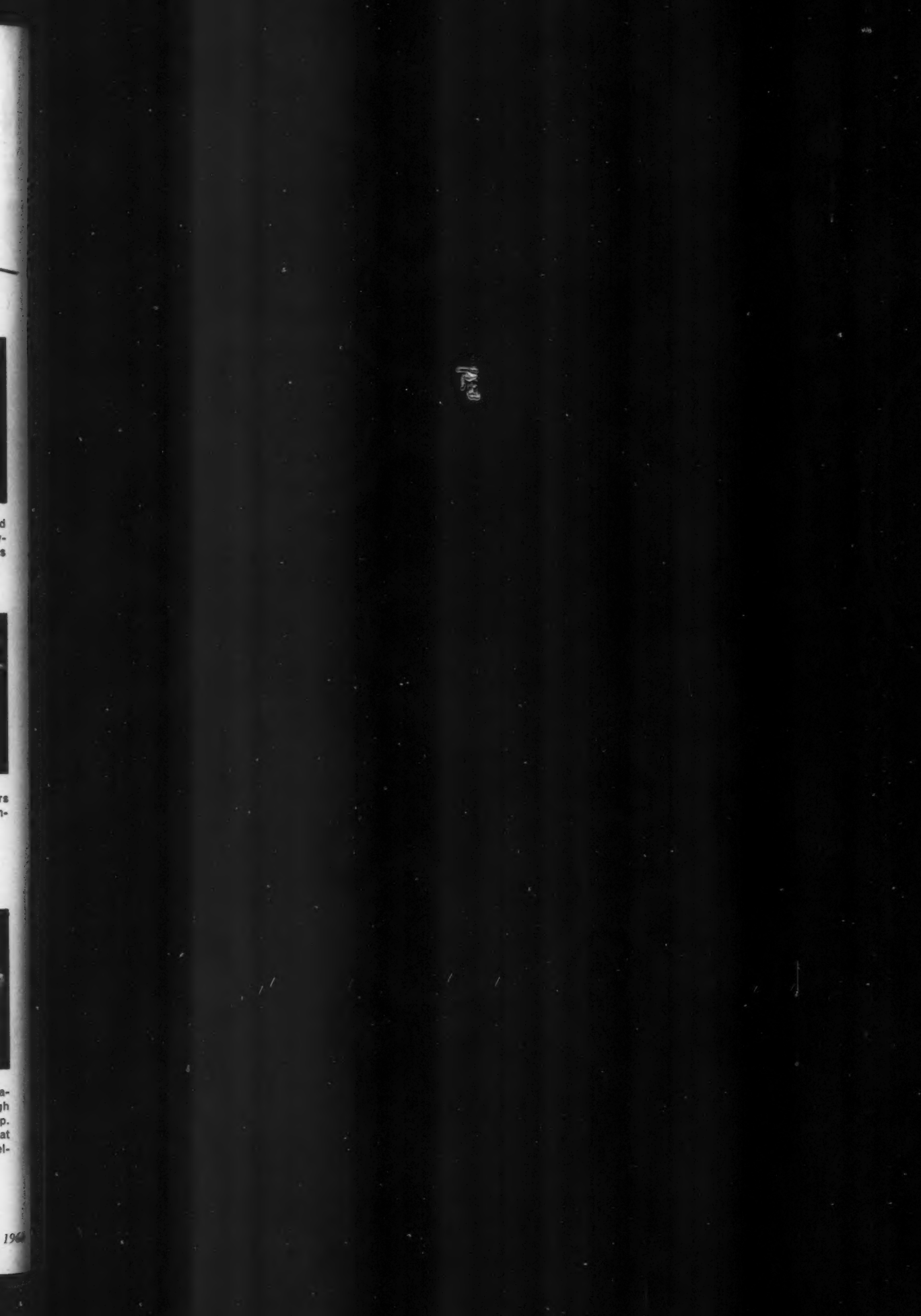

Paper and Pulp Mill Catalogue

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- New Products
- New Literature
- Advertised products and services

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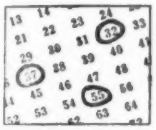

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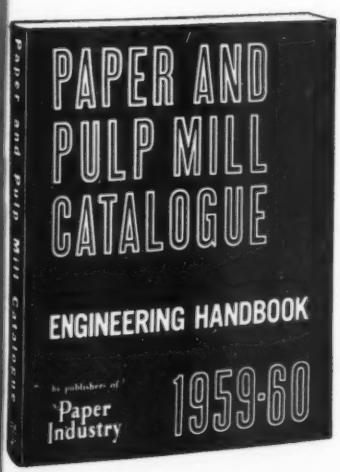

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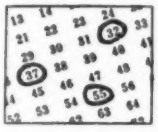

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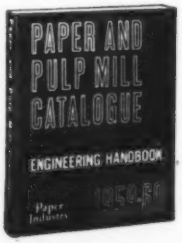
- **Buyers Service Section** — includes a comprehensive, cross-reference list of machinery, equipment, materials and chemicals with names of responsible manufacturers and suppliers; a list of trade names; complete addresses of all firms that are listed in the Section; and a directory of educational institutions in the United States and Canada having courses of instruction in the manufacture of pulp and paper.

- **Engineering Handbook Section** — a compilation of practical engineering data, formulas, graphs, charts, tables, etc., including a section dealing with uses and hazards of chemicals used in pulp and paper making. New material added yearly.



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NEW PRODUCTS

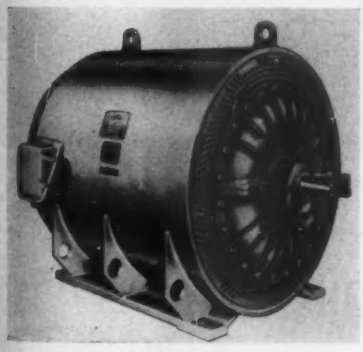
These items are numbered for your convenience. Further information on the various products described may be requested at no obligation through our Readers' Service Dept. Use the business reply card in this issue.

Fibrous potassium titanate

Successful production of complex integral shapes has been achieved with Resistotherm, a low-density, wide-application insulating material exhibiting very low thermal conductivity at temperatures to 2200° F.

Resistotherm (a special compact of du Pont's fibrous potassium titanate) can now be supplied to order in a wide variety of specially formed shapes which include rectangular and curved pads and solids (both flat and arched), uniform rectangular pipe shapes, uniform circular pipe shapes, etc. *Resisto Chemical Inc.*

Circle No. 1 on Readers' Service Card



Tube-cooled motors

Tube-cooled air-to-air heat exchanger motors ranging up to 2000 hp, are built in standard enclosed construction for use in non-hazardous locations and in explosion-proof construction. Tube-cooled motors are designed to operate in unfavorable environmental conditions, providing protection against excessive moisture, oil vapor, chemicals, alkalies, coolant- and air-borne dust, sand, dirt and metallic particles.

They are used on pumps, compressors, fans and blowers, mixers, crushers, special industrial machinery and refiners, etc. Other features include an effective cooling system, corrosion resistant construction, capsule type split sleeve bearings and pressure lubricating systems with oil level indicators. *Louis Allis Co.*

Circle No. 2 on Readers' Service Card

Slitter-rewinder

The new model 800 slitter-rewinder is said to be the most versatile device developed for handling all off-caliper materials. Each slit strip has its own rewind shaft and arms, giving positive contact with the surface winding drum and the controlled center rewind torque.

This combination of controlled center wind tension and controlled surface winding pressure on each slit strip (rewound roll) gives the ultimate in a slit and rewound roll. The individual rewind shafts provide exceptional ease of unloading finished rolls. Loading is performed with equal facility as there are no heavy mandrels to lift and no spacers to handle.

Specifications are as follows: speeds through 1500 fpm, web widths constructed to trim webs through 72 in., and a 30-in. maximum rewind dia. *John Dusenbery Co. Inc.*

Circle No. 3 on Readers' Service Card

Thermi-tem

A new instrument for measuring temperature of liquids, penetrable masses and surfaces, reportedly gives the ultimate temperature in 3 to 10 sec. with an accuracy of 2-per cent. Temperature scales are linear and available in a range from −50° F. up to 500° F. The indicating meter has shock protected mounting in an anodized aluminum case. The probe has a 6-ft. lead and can be either straight or have a 90° angle. *Testing Machines Inc.*

Circle No. 4 on Readers' Service Card

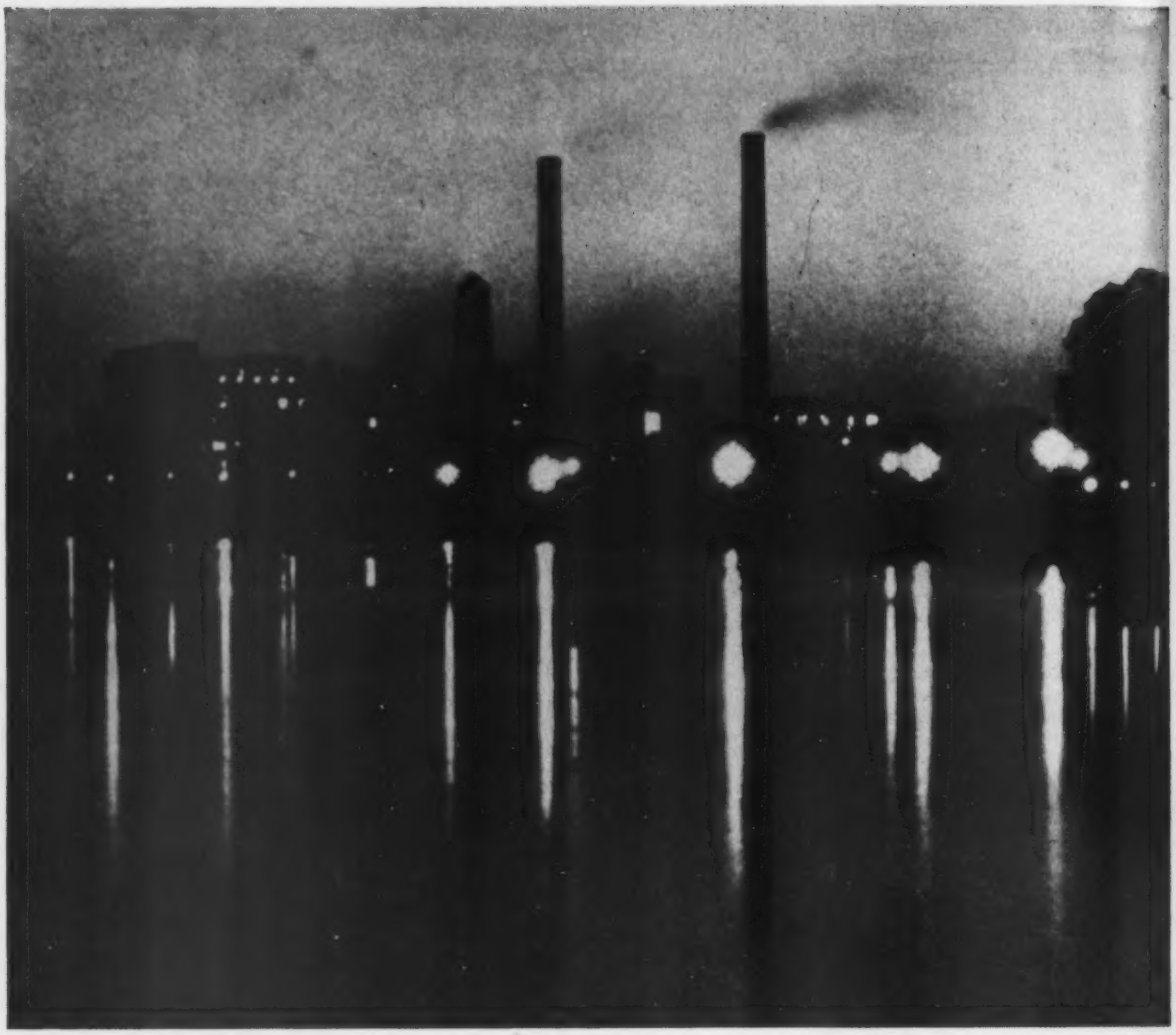
Inhibitive primer

The new specialty cold-applied, inhibitive primer is for use in contaminated industrial or marine atmospheres. The new primer, Bitumastic 11-S, serves a dual role. As a shop primer, it prevents contamination from attacking the surface before the protective coating can be applied. It is also used to prevent undercoating where mechanical damage produces breaks in the protective coating, after applied. *Koppers Co. Inc.*

Circle No. 5 on Readers' Service Card

Measuring pocket microscope

An accurate, well made little measuring pocket microscope no larger than a fountain pen, is finding wide use in industry for measuring and examining objects under 50X magnification. Useful for checking and measuring small parts, for quality control, to detect inferior merchandise, etc., it can also be used for checking hi-fi



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needles. The glass etched reticle is calibrated for measuring 1/10 in. by .001 in. divisions. A chrome reflector at the base of the instrument, reflects light on the object being examined. *Edmund Scientific Co.*

Circle No. 6 on Readers' Service Card

Rotary vane feeder valves

A special series of pressure, tight, stainless steel rotary vane feeder valves has been developed for the handling of a variety of industrial products. Although originally designed to serve as airlocks in the handling of plastic cubes, applications of the new design are said to be endless.

Major design features include extra heavy construction, external ribs and close tolerance fits, to provide satisfactory service under 25 psig internal pressure and high vacuum. The valves are designed to seal effectively against a differential pressure of 15 psi across the rotary element and to operate from 0°F. to 250°F. Rotors have closed ends with piston rings and "O" ring seals. *Sprout, Waldron & Co. Inc.*

Circle No. 7 on Readers' Service Card

Vinyl dispersion resin

A line of polyvinyl chloride resins has been broadened further by the development and availability of PVC 70, a new vinyl dispersion resin for organosols and plastisols. PVC 70 is said to allow the formulation of dispersion compounds with several distinct advantages over conventional compounds: low viscosity at both low and high shear rates as well as excellent viscosity stability. Among the industries that will benefit from the use of this new resin are flooring, fabric and paper coating, metal coating and plastisol molding. *Diamond Alkali Co., Plastics Div.*

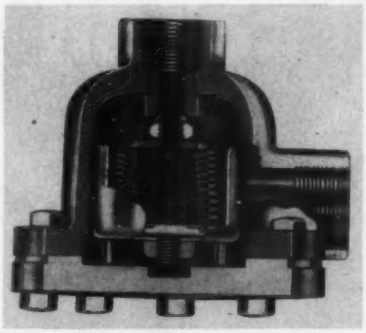
Circle No. 8 on Readers' Service Card

Draw-speed recorder

The Bristol Dynamaster recorder, well-known for its many applications in the paper industry, is now available in a draw-speed recording model which, by providing a guide for the control of draw-speed, eliminates costly paper breaks. By knowing the speeds of the couch and press rolls, an operator can pin-point trouble spots and adjust speeds to maintain proper tension.

The recorder has a manual multi-point switch for recording selected draw-, couch- and press-roll speeds; ranges are available for all applications. An added feature is a temper-proof compensator for roll-diameter changes (allowing for wear, etc.). *Bristol Co.*

Circle No. 9 on Readers' Service Card



TM trap

What is believed to be the greatest advancement in condensate trapping is known as the class TM trap. It utilizes the sensitivity of the thermostatic principle and yet modulates with the degree of flow and consequently is not subjected to possible bellows fracture as a constantly on-off cycling trap. *C. E. Squires Co.*

Circle No. 10 on Readers' Service Card

Submersible pump

For industrial plants, schools, shopping plazas, or any installation requiring a large volume of water from 6-in. or larger deep wells, the new series UF turbine bowl pump is built in 16 sizes from 5 to 15 hp, providing capacities up to 180 gal./min. from well depths to 1450 ft.

Bowl assemblies, varying in number from 2 to 23 (depending on well depth), feature heavy cast iron bowls with corrosion-resistant, baked-on alkyd melamine finish, bronze impellors and stainless steel fastenings. Heavy stainless steel shaft, coupling and non-corrosive intake screen eliminate all problems of rust and corrosion. Tandem bearings located in each stage, are leaded bronze and Goodrich cut-less rubber. Pre-filled water lubricated models require no external lubrication and motor leads are said to be fully protected by a heavy-gauge stainless steel guard. *Goulds Pumps Inc.*

Circle No. 11 on Readers' Service Card

New "MS" variable-speed sheaves

Two new additional sizes of "MS" variable-speed sheaves bring the number of models in this series to 7, covering a range from 2 to 15 hp. The new additions are MS-100-10 (10 hp at 1750 rpm) and MS-100-15 (15 hp at 1750 rpm). Both have maximum pitch dia. of 10 in. The hp ratings are based at constant torque and for maximum speed; that is, at maximum pitch dia. *T. B. Wood's Sons Co.*

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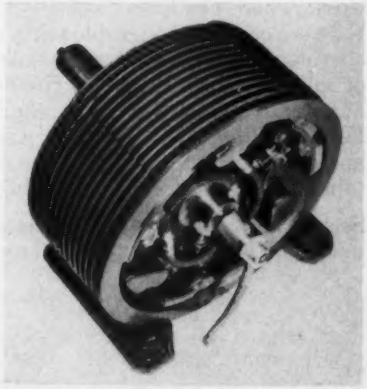

Governor controlled brakes

Built for continuous heavy-duty braking (tension control), these governor controlled brakes come in two different series. The built-in governor control automatically

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WAX

First: There are four ESKAR Wax grades. ESKAR R-50—For special high blocking point, high gloss coatings. Frequently may be substituted for part of micro in blends. ESKAR R-40—For liners and overwraps where sealing strength is important. ESKAR R-35—For saturation waxing and carton applications. ESKAR R-25—For dry waxing, as a process ingredient and miscellaneous uses.

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reduces torque output as rpm increases by means of counterweights in the shoe assembly.

These brakes are said to withstand rotational speeds to 2400 rpm and high air pressures, without affecting the operating characteristics or wear-rate on the brake shoes. Both air and water cooled models are available with permanent or adjustable bases, and for shaft end or flange-type mounting. *Horton Mfg. Co. Inc.*

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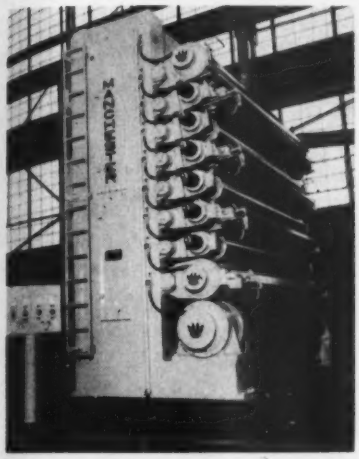


Calender stack

With this new open-side calender stack, loading can be applied to any roll in the stack on a selective basis. The feature of individual roll-load controls are said to permit a mill to produce a smoother, more uniform finish on a wider range of fine papers.

Precise pressure adjustments are provided by this company's air-over hydraulic system, which uses only ordinary mill air pressure as a power source. No hydraulic pumps, tanks or motor drives are required. Roll loading, unloading and nip relieving are accomplished through levers in the calender's all steel frames. A master console provides fingertip control. *Manchester Machine Co.*

Circle No. 14 on Readers' Service Card

Ear plugs

To protect against the growing noise problem in the paper industry, an inexpensive ear plug has been developed and is now available. The new design and material is said to give the highest reduction in sound plus exceptional comfort.

Called Com-fit ear plugs, they are molded of a special formula of silicone rubber. Thus, they are unusually durable and pliable, non-toxic, non-allergenic, resistant to ear wax and skin oils, and may be boiled and sterilized to make them interchangeable amongst the wearers. They are made with a triple flange to guarantee complete sealing of the ear canal. Independent laboratory tests proved white noise attenuation of these ear plugs equalled 36.3 decibels. The frequency versus attenuation charts indicated a maximum attenuation of 63 decibels at the frequency of 4000 cps. *Sigma Engineering Co.*

Circle No. 15 on Readers' Service Card

Continuous vacuum filter

The Straight Line Filter is a new horizontal, continuous vacuum filter which uses an entirely new type of vacuum seal with no movable valves and a corrosion resistant, sectionalized drainage belt which permits close separation of filtrates. Among the suggested uses for the new filter are: in chemical and food processing, filtering slurries, and in the pulp and paper industry.

Maintenance costs are reduced because all parts are visible and accessible, and no complicated valves or special assemblies are needed. The filter media can be removed and replaced in 30 min., thus reducing down time. *Straight Line Filters Inc.*

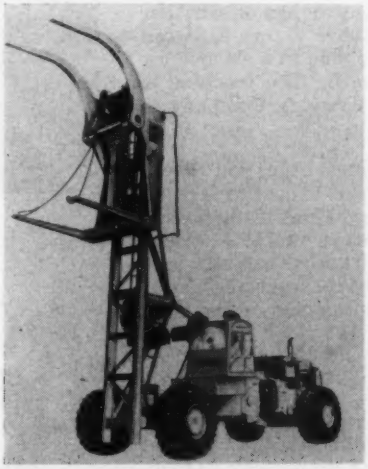
Circle No. 16 on Readers' Service Card

Bronze gate valves

A new series of union bonnet bronze gate valves are available which contain built-in safety features and performance characteristics that are said to make them especially suitable for all applications in the 125 to 150 psi steam-pressure range.

The combination of three design elements, (union bonnet, reinforced body, and cylindrical body neck section), makes the new series one of the most safe and maintenance-free now available to all industrial and piping systems, as reported by the manufacturer. *Lunkenheimer Co.*

Circle No. 17 on Readers' Service Card



Log stacker

An improved series F log stacker has undergone several electrical and structural design changes. All structural components of the new unit are now fabricated from heavy nickel-chrome alloy steel to give added strength. The mast has been reinforced and the care structure has a new wrap-around design and is now equipped with a larger main and side thrust rollers.

Other improvements include de-mountable tusks and an independently operated cable kicker that removes all the logs from the forks. Easier access to all functional components is afforded by conveniently placed ladders, steps and handholds. *R. G. LeTourneau Inc.*

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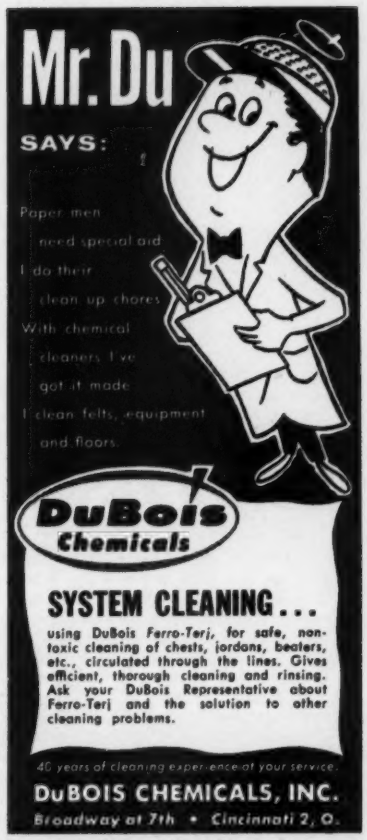
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Paper men need special aid
I do their clean up chores
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"Bally-hi" ladder

A new concept in ladder convenience and safety consists of a 28 ft. two-stage ladder mounted on a sturdy, wheeled, frame equipped with collapsible outriggers. Its construction permits it to straddle seats in auditoriums or theaters, machinery in plants, desks or furniture in schools and offices and to be useful in a wide variety of situations. The aluminum extension ladder consists of two 14 ft. sections.

It provides a safe means of working at heights up to approximately 30 ft. above the ground. Guard rails along the entire ladder length and a pulpit type guard rail at the top enable the user to work confidently at any level without fear of falling. *Eldridge Co.*

Circle No. 19 on Readers' Service Card

Siliconized coating

The life of asphalt driveways, ramps and parking areas is said to be greatly extended

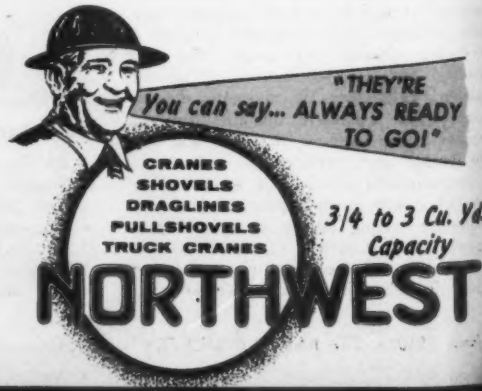
MEETS THE JOB PROBLEM IN EVERY PHASE OF PULPWOOD HANDLING!

NORTHWEST Truck Cranes will cut cost and speed up pulpwood handling whether you have a woods problem or whether it's in the pulpwood yard. The picture above shows a 35-ton Northwest Truck Crane feeding lodgepole pine to a slasher for converting the logs to 8 ft. pulpwood lengths. The machine is one of several Northwests owned by Bly Logging Company of Klamath Falls, Oregon.

Northwest Truck Cranes and Crawler Cranes bring you advantages that mean smoother handling, longer machine life, less upkeep and greater safety. Watch one at work! Many leading mills are using them. Smooth swing comes with Uniform Pressure Swing Clutches that eliminate the jerks and grabs that set a load to swinging. It brings the accuracy needed for stacking or for delivery to conveyors and often eliminates the man on the pile.

The true feel of the load comes with the Feather-Touch clutch control along with easier operation that reduces operator fatigue. The Independent High-Speed Boom Hoist operates under power both up and down and it stands up under hour after hour operation. It permits easy booming to reach high piles or cars and trucks. Simplicity of design and ball or roller bearings on all high-speed shafts make upkeep easy. Convertibility and a high reputation for output performance, whether as a standard Crane, Shovel, Dragline or Pullshovel add value for the man that buys it from you. If you are considering replacing old equipment or adding to your present plant layout, let us tell you what a Northwest is doing for many other leading mills in both the United States and Canada.

A Model 41 Northwest feeds jackstrawed pulpwood to a chain feeder at a Scott Paper Company mill.



NORTHWEST ENGINEERING COMPANY
1508 Field Building • 135 South LaSalle Street
Chicago 3, Illinois

by the use of a new siliconized coating called Park-king. This coating is applied by brush or spray to form a satin black finish which is reported to completely waterproof the asphalt surface. The silicones in this product prevent water absorption from rain, ice and snow; it also protects the asphalt from oxidation under the hot sun.

Supplied ready to use (no mixing), coverage is estimated at 75 sq. ft./gal. New surfaces should be allowed 90 days to age before sealing. *Pace Products, Inc.*

Circle No. 20 on Readers' Service Card

Balancing and shut-off valve

A new combination balancing and shut-off valve with a built-in "memory," takes the place of two valves normally used in series on the return line of a water coil and competes favorably with the price of the two valves it replaces.

Differing from most balancing valves, it is said to be capable of absolutely tight shut-off while performing the balancing function, thereby eliminating the need for a gate valve in series.

Known as the Illinois valve, it is of machined-brass construction and is available in four sizes, ½, ¾, 1 and 1-¼ in., and comes in four straightway patterns. *American Air Filter Co. Inc.*

Circle No. 21 on Readers' Service Card

Pressure control

A new dual switch, explosion proof control developed especially for pipelines, called the H98A, is designed to meet the rigid requirements of the pipeline industry. It incorporates excellent stability features, maintains settings without drift and may be mounted in any position without affecting calibration.

Two completely separate switches permit control of two independent circuits to simulate double-pole circuitry. The calibration adjustment is protected by a tamper-proof cap. Also, pressure settings may be locked to avoid unauthorized tampering.

Several models are available with calibrated ranges between limits of 20 and 1700 psi, with proof pressures of 2500 psi and maximum pressures of 3500 psi. *United Electric Controls Co.*

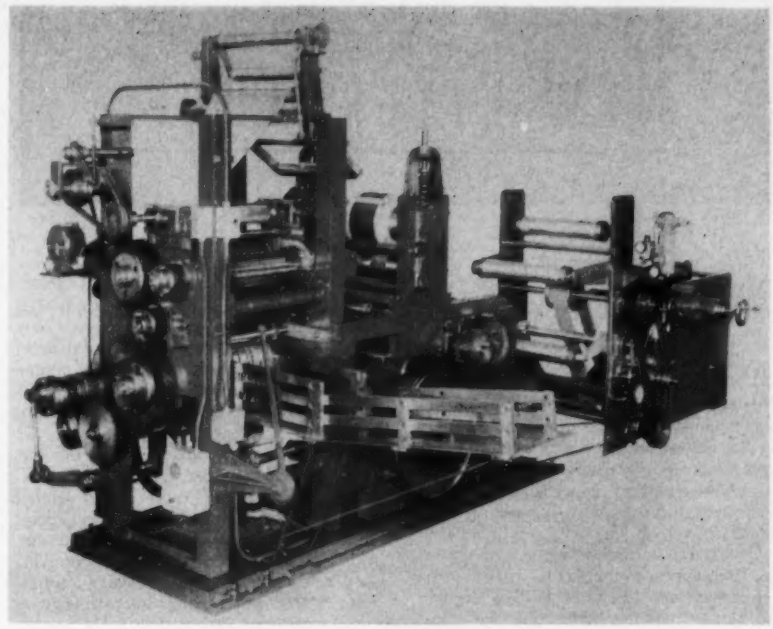
Circle No. 22 on Readers' Service Card

Water-soluble polymers

A new family of water-soluble polymers, useful as adhesives, thickeners, protective colloids, and suspending agents is now available. Called Ceron, the new chemical is available as a non-ionic material, a product which is anionic in nature, and a product which is cationic. In addition, Ceron N, nonionic, is available in three different types.

In solution properties, the Ceron polymers have certain characteristics similar to starches. However, they are soluble without cooking and do not retrograde. Solutions, even of the very low viscosity types, can be prepared without color degradation and viscosities are stable with no increase on aging. In addition, other differences become apparent on study. *Hercules Powder Co.*

Circle No. 24 on Readers' Service Card

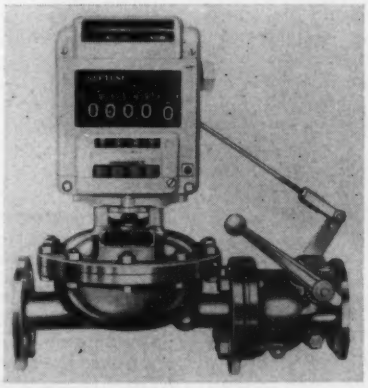


Napkin folder

A new napkin folder, model 2919, utilizes single web operation in order to produce the intermediate 15- by 15-in. napkin. Though smaller than the conventional 17-in. dinner size, the intermediate napkin is large enough for normal, everyday use.

In addition to high speed production (300 napkins/min., of both ¼ fold and the increasingly popular double transverse 8 fold), other features of the new napkin folder include automatic constant-tension dancer roll and controls, rotary shear cut-off, variable speed pull rolls, automatic count and vacuum folding. *Paper Converting Machine Co.*

Circle No. 23 on Readers' Service Card



Auto-stop meter

A new 1½-in. stainless steel auto-stop meter now provides automatic controlled measurement of predetermined quantities for batching and processing systems where corrosive liquids are used.

The meter, based on the Neptune positive displacement principle, has only one moving element exposed to the liquid. This design is said to achieve fine-instrument accuracy with a smooth, non-pulsating action and few working parts. Precision-machined clearances between chamber and disc prevent costly wear or excessive slippage. With a capacity range from 20 up to 100 gpm, the meter is available in a choice of models for every application. Units can be furnished with an auto-switch control feature, repeating auto-stop, ticket printer, or any combination of these features. *Neptune Meter Co.*

Circle No. 25 on Readers' Service Card

Devcon rubber

Rubber in paste form, now available, is a general purpose repair material. It is said to have great strength and to be an excellent adhesive for rubber, iron, steel, aluminum, bronze, wood, many plastics and other materials.

Reported to be waterproof, easy to use, fast setting, unaffected by oil, gasoline and most chemicals, Devcon rubber is now used by many pulp and paper mills, machine shops, chemical plants, and other industries for sealing or caulking around machinery, insulating electrical equipment, making gaskets, and as a coating to protect machinery, piping, etc. *Devcon Corp.*

Circle No. 26 on Readers' Service Card

NEW LITERATURE

Books

PERFORMANCE OF LUBRICATING OILS (Second Edition), by H. H. Zuidema. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. 205 pages.

This new edition of an outstanding monograph summarizes and evaluates the data on the performance characteristics of lubricating oils under various conditions. It incorporates the many papers on the subject published since the first edition. Selected references add to the bibliography in each chapter, and corresponding revisions and additions appear in the text.

Subjects new to this edition include multigrade motor oils, fretting wear and paper chromatography. Entire chapters are included on lubrication processes, rheology, oxidation, bearing corrosion, sludge and lacquer deposition, emulsification and foaming, and manufacturing methods.

ELEMENTS OF ION EXCHANGE, by Robert Kunin. Published by Reinhold Publishing Corp., 430 Park Avenue, New York 22, N. Y. 164 pp. $5.75.

The subject matter of this book, divided into ten parts, has been written specifically for those with little or no theoretical background in the subject. This book is unique in that other treatments of the material deal either with advanced theory or specific applications.

The ten chapters are listed as follows; historical review, the nature of ion-exchange materials, the structure and synthesis of ion-exchange materials, general principles of ion-exchange applications, testing and evaluation of ion-exchange materials, general principles of ion-exchange applications, water conditioning, ion exchange in hydrometallurgy and related fields, miscellaneous applications, ion-exchange engineering, and the future of ion exchange.

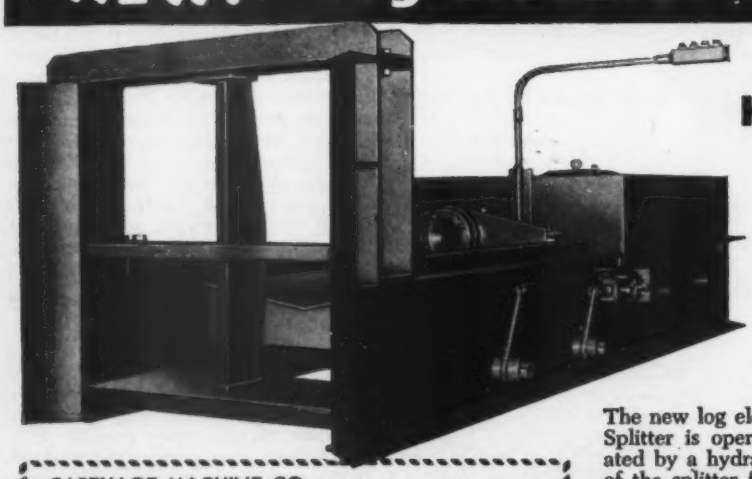
USDA Reports

THE FOLLOWING STATION PAPERS are available from M. B. Dickerman, director of the Lake States Forest Experiment Station, U. S. Dept. of Agriculture Forest Service, St. Paul 1, Minn.: No. 74, Forest Tree Improvement Research in the Lake States; No. 76, Effects of Forest Cover on Soil Freezing in Northern Lower Michigan.

THE FOLLOWING STATION PAPERS may be obtained by writing to Joseph F. Pechanec, director of the Southeastern Forest Experiment Station, Asheville, North Carolina: No. 102, Site Treatment Reduces Need for Planting at Loblolly Harvest Time; No. 104, Site Index Comparisons for Several Tree Species in the Virginia-Carolina Piedmont; No. 107, Yield of Old-Field Slash Pine Plantations; No. 108, Tree Grades Give Accurate Estimate of Second-Growth Yellow-Poplar Values.

THE FOLLOWING REPORTS, either new or revised, are available from the Director, Forest Products Laboratory, Madison 5, Wisconsin: No. 1766-15, Tanoak

NEW! Log Elevator Mechanism



Makes the Carthage Hydraulic Log Splitter

EVEN EASIER to INSTALL

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EVEN EASIER to SERVICE

The new log elevator of the Carthage Hydraulic Log Splitter is operated through a series of levers actuated by a hydraulic cylinder mounted on the outside of the splitter frame. No pit is required, so that the Splitter is easy to install and easy to move from location to location. Can be placed on cross timbers – no bolting-down needed. Cylinder rings and packing are quickly accessible for low-cost maintenance. ONE STROKE splits logs into four pieces (6-way axe also available). Fast, safe, trouble-free push-button operation. 30" and 38" log diam. splitters available. Service-proved since 1950.

CARTHAGE MACHINE CO.
CARTHAGE, N. Y.

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CARTHAGE, N. Y.
Send information on the Carthage Hydraulic Log Splitter, including the new log-elevator mechanism.

Name.....
Firm.....
St. or Rd.....
City.....Zone....State.....
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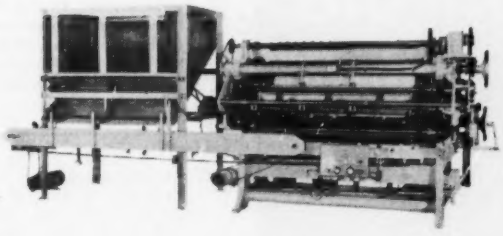
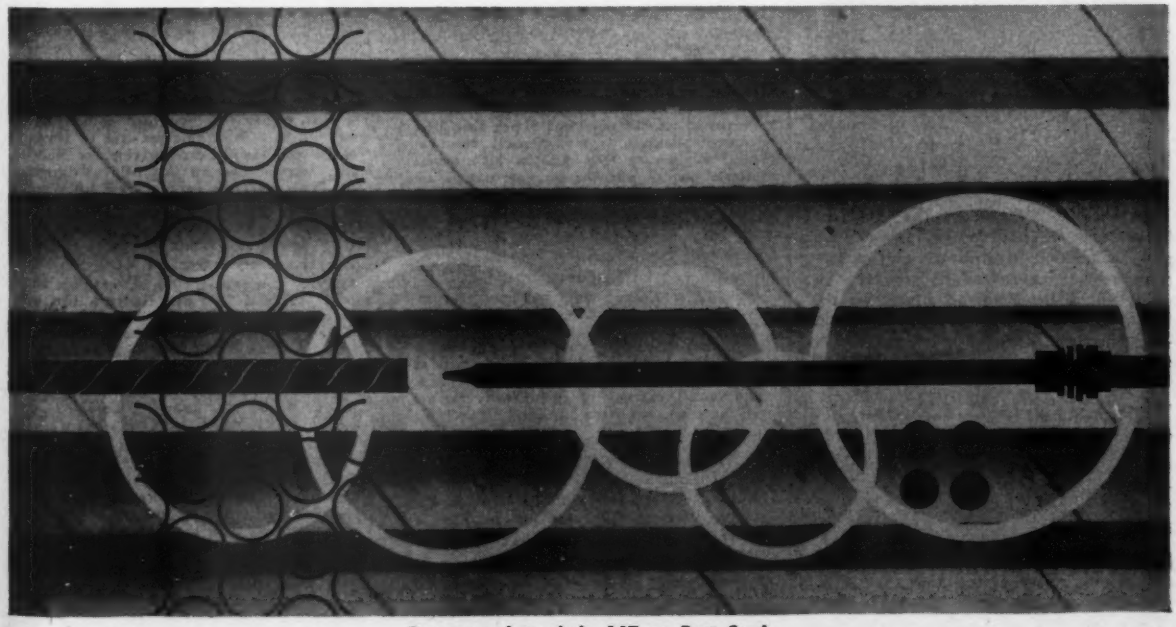
Creative engineering
and development
of converting machinery



New Automatic Core Loader — loads up to 15 long cores per minute! This new PCMCo loader, Model 2765, has a new system for feeding and positioning cores, using a simple conveyor and pushing action with no reciprocating mass. An exclusive roller system guides the mandrel into the incoming core for positive feed and positioning. Cull discharge and storage plus log storage facilities and slit roll discharge are other production-slanted design features. Just right for coordination with a Paper Converting automatic rewinder. One of the important new converting machines from the builder you should think of first.

PAPER CONVERTING MACHINE COMPANY - GREEN BAY, WISCONSIN

Folders, Rewinders, Embossers, Napkin and Core Machines, Letterpress and Flexographic Presses, Special Converting Machinery



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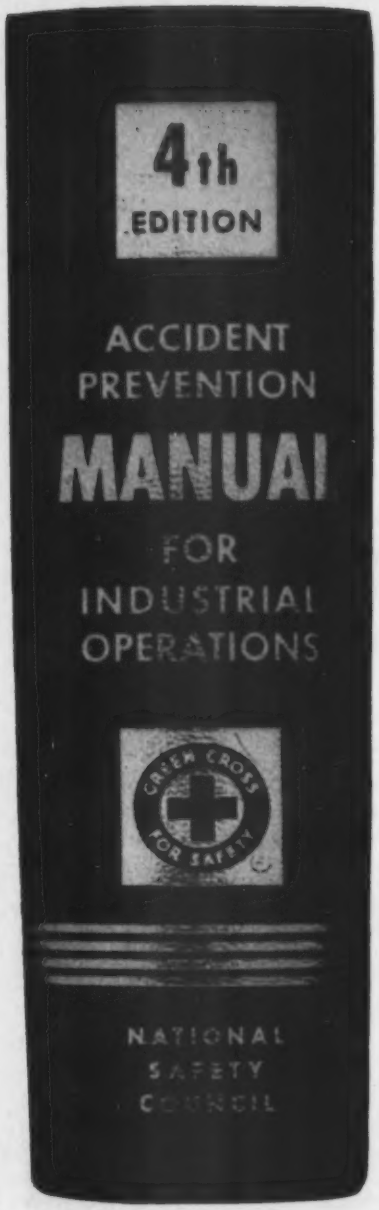

The new *4th Edition of the Accident Prevention Manual* contains over 1500 pages, over 500 illustrations and photographs—was reviewed by nearly 400 safety specialists from all industries before publication. It's the most complete, most accurate, most up-to-date safety manual available.

Single copy price $15.50. Use this stock number (121.51) when ordering.

NATIONAL SAFETY COUNCIL

425 North Michigan Ave., Chicago 11, Illinois

Circle No. 148 on Readers' Service Card

(some characteristics described which affect its use for the production of veneer and plywood); No. 2005, Service Records on Treated and Untreated Fence Posts; No. 2070, Engineering Calculations for the Distillation of the Furfural-Water System; No. 2158, Durability of Resin-Treated Paper Honeycomb Core; No. 2162, Continuous Cold Soda Pulping of West Coast Red Alder, Tanoak, Madrone and Bigleaf Maple; No. 2163, Yield and Value of Finshed Lumber from Western White Pine Trees and Logs; No. 2168, Some Physical and Mechanical Properties of Noble Fir; No. 2169, Finishing and Maintaining Wood Floors.

Manufacturers' Publications

These items are numbered for your convenience. Copies of the publications may be requested at no obligation through our Readers' Service Dept. Use the handy business reply card which accompanies this issue.

Chain and sprockets

Dodge Mfg. Corp. is offering a new and extensive bulletin on their roller chain and Taper-Lock sprockets. Photographs and diagrams show construction details and one section is devoted to Taper-Lock Chain Couplings. Complete with selection data and list prices, the bulletin also includes information on installing roller chain drives, calculating center distances, horsepower ratings and instructions for lubrication and maintenance.

Circle No. 27 on Readers' Service Card

Engineering handbook

Tate Engineering Inc. welcomes your request for their new and simplified 88-page handbook. This strainer guide contains a compilation of reference data for the layout of fluid flow systems and sizing of strainers, tabulated results of testings in its own research facilities, and valve and pipe selection information. Information arranged for simplified use by purchasing agents, includes all of the technical data necessary to the engineer for the layout of fluid flow systems.

Circle No. 28 on Readers' Service Card

Armored pipe bulletin

Haveg Industries Inc. welcomes your request for Bulletin FRP-1 which describes the various properties of recently developed Haveg fiber glass reinforced plastic pipe for chemical corrosion control. Engineering facts such as high impact resistance coupled with the corrosion control are illustrated by tables and charts.

Circle No. 29 on Readers' Service Card

Microstraining installations

Glenfield & Kennedy Inc. welcomes your request for a four-page brochure which graphically illustrates three Microstraining installations. This system of automatic filtration, widely used for the clarification of raw water supplies such as lake and river water, is said to entail low initial outlay, small compass of installation, nominal operating costs, and high filtration efficiency.

Circle No. 30 on Readers' Service Card

Non-ionic surface active chemicals

Hodag Chemical Corp. has just published a bulletin which describes applications and tabulates properties of 37 representative non-ionic surface active chemicals. The products are divided into four groups: glycerol esters, other polyhydric alcohol esters, polyglycol esters and polyoxyethylene alkyl aryl ethers. The four-page bulletin suggests the considerable variety of chemicals that are available within each of these groups.

Circle No. 31 on Readers' Service Card

Chipper knives chart

Disston Division, H. K. Porter Co. Inc., is offering a chart which compares this company's chipper knives with those of other manufacturers. The chart allows the comparison of numbers of grinds for each knife, the per cent of sawdust, over-size chip and under-size chip, as well as other important elements that help to determine which knife does the most efficient job.

Circle No. 32 on Readers' Service Card

Roller chains and sprockets

Link-Belt Co. is offering a new 44-page book which, "keydexed" for easy reference, lists over 2000 types and sizes of stock roller chains and sprockets including standard and double pitch power transmission chains, a large selection of conveyor chains and attachments, and one of industry's most complete line of sprockets.

Circle No. 33 on Readers' Service Card

Three paper expansion meters

Testing Machines Inc. is offering a data sheet which illustrates and describes three different types of paper expansion meters. In operation, these instruments show the change in length of a given specimen of paper caused by a change in the relative humidity of the atmosphere surrounding the paper.

Circle No. 34 on Readers' Service Card

The Paper Industry
Professional and Business Services

J. E. SIRRINE COMPANY
ENGINEERS Since 1902
GREENVILLE, SOUTH CAROLINA

Design — Consultations
Paper & Pulp — Reports
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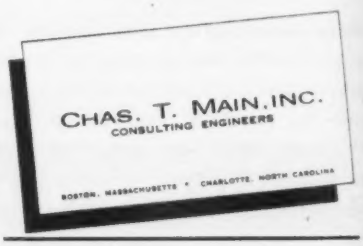
Engineering for the PULP and PAPER INDUSTRY



CLASSIFIED ADVERTISING

RETIRING?

Add to your retirement income by making your paper mill knowledge pay off. Spare time. No selling. Write Box 690, The Paper Industry.

STATIC ELECTRICITY steals profits, causes fires and explosions! Kill it with inexpensive, trouble-free Static Eliminator Brushes. Fully guaranteed—thousands in use. Send for free illustrated folder today. Western Brush Co., Dept. P., 215 S. Western Chicago 12, Illinois.

HELP WANTED

Paper chemist with mill experience in paper and coating wanted for technical sales service. Willing to travel as required. Send resume, photograph and salary required. Replies will be treated in strict confidence. Box 696, The Paper Industry.

CONVERSION CHIEF
SOUTH AMERICA PAPER MILL

First class man to organize, supervise and be responsible for conversion work. Experienced in sheeting, bag production, bond and manifold conversion and the manufacture of gummed tape with facial tissue conversion experience desirable.
Write to Box 699, The Paper Industry, giving complete details of education and experience, and salary desired. All replies will be kept confidential.

"FOR SALE" Equipment from a complete primary-secondary activated sludge sewage treatment plant employing separate sludge digestion and vacuum filtration built-in units. Design capacity 4.5MGD. Good Condition.

Bergen County Sewer Authority
Box 122, Little Ferry, New Jersey
HU-7-1350

CHEMICAL ENGINEER

Large manufacturer of specialty items in southeastern Massachusetts has attractive opening for chemical engineer with 3 to 10 years experience in paper or allied field. Position is in process development section of plant employing over 500. Send replies to Box No. 700, The Paper Industry, giving information on training, experience and salary desired.

PLANT ENGINEER

Nationally known firm near Boston, Mass., has opening for graduate mechanical or chemical engineer capable of directing machine design and plant projects done by graduate engineers. Prefer man with 10 to 20 years experience as successful plant engineer or assistant, thoroughly familiar with good maintenance practices and direction of maintenance crew through master mechanic. Should have experience in coating, laminating and printing equipment. Write Box 701, The Paper Industry, giving full information on experience, education and salary expected.

Kalamazoo

WOOD TANKS

Built from best tank grade lumber. Backed by over 90 years' tank building experience.
Kalamazoo can give you what you want. Free estimates and suggestions. Write today.

WOOD TANK DIVISION

Kalamazoo TANK and SILO COMPANY

660 HARRISON ST., KALAMAZOO, MICHIGAN
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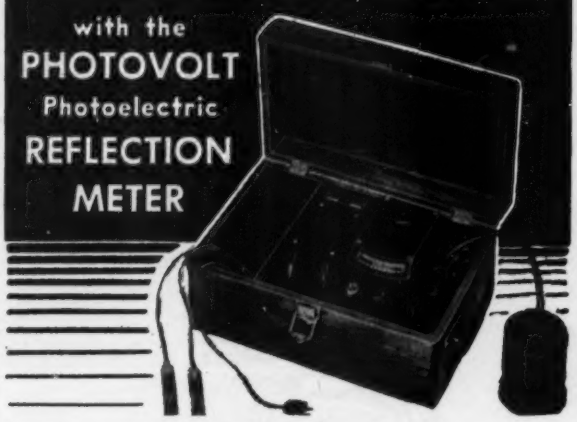
You Can Be Sure!

with the
PHOTOVOLT
Photoelectric
REFLECTION
METER



for accurate measurement of

Brightness and Opacity

of pulp and paper in terms of TAPPI specifications.

Also for ***Gloss and Color***

tests on paper, card board, and other paper products.
Portable, reliable, rugged, simple to operate
Also: Colorimeters, pH Meters

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95 MADISON AVENUE NEW YORK 16, N. Y.

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The right rotary joint for every need!

- . . . ON PAPER MACHINE DRYERS
- . . . CORRUGATORS
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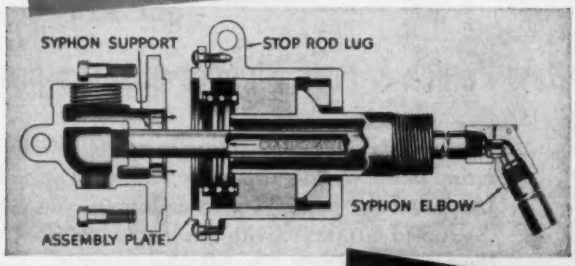
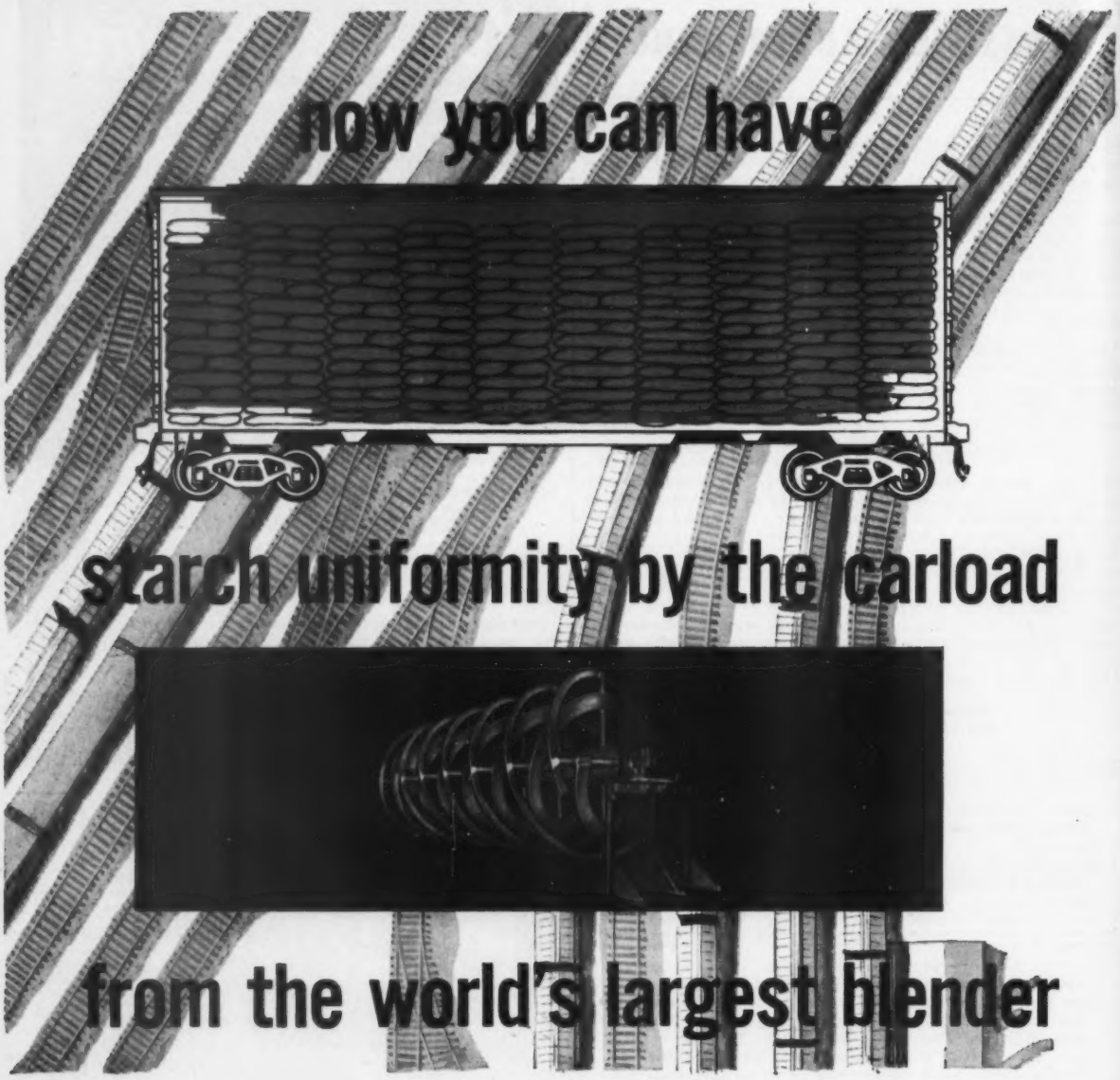
- . . . ROOFING MACHINES
- . . . WAXERS
- . . . EMBOSSERS
- . . . PRINTING PRESSES



Type "SBP" shown is completely self-supporting. Like all Johnson Joints it has no packing, needs no lubrication or adjustment. The syphon elbow replaces unwieldy curved condensate drainage pipes with two straight pipes, hinges to pass right through the joint. Write for Bulletin S-3002. Johnson Rotary Pressure Joints are available for all operating speeds, pressures, mountings.

Johnson
ROTARY
PRESSURE
Joints
First in the Paper Industry

THE JOHNSON CORPORATION
845 Wood St., Three Rivers, Mich.
For more data circle 151 on Post Card



New Penick & Ford Blender ensures production quantities at pilot plant tolerances

The big advantage of having your corn starches mixed in the world's largest blender is not size of batch, but the perfect starch uniformity you get . . . up to 60,000 lb. with one bag exactly the same as the next. The blender is part of Penick & Ford's new starch derivative plant which is designed to deliver corn products of improved quality and precise uniformity. With its new facility, P & F can offer industrial starch users production quantities to exact customer specifications, no matter how large or small the order. Call

PENICK & FORD, LTD.

INCORPORATED

750 THIRD AVE., NEW YORK 17, N. Y.; 1531 MARIETTA BLVD., ATLANTA, GA.; CEDAR RAPIDS, IOWA; 18 CALIFORNIA ST., SAN FRANCISCO 11, CALIF.

For more data circle 152 on Post Card

MARKET QUOTATIONS

RAGS (Domestic)

New Cotton Cuttings

The following are brokers' and large dealers' average buying prices for sizeable lots in cents per pound f.o.b. New York:

	per cwt.
No. 1 white shirt cuttings	13.00— 13.50
Soft unbleached muslins	15.50— 16.00
Fancy shirt cuttings	4.50— 5.00
No. 1 percales	5.50— 6.00
No. 1 washables	2.25— 2.50
No. 1 light silesias	6.50— 7.00
No. 1 light prints	4.75— 5.00
Light flannelettes	6.50— 7.00
Cottonades	2.75— 3.25
Blue overall cuttings	6.75— 7.25
Blue cheviots	6.75— 7.25
Canton flannels, bleached	10.50— 11.00
Canton flannels, unbleached	10.50— 11.00
Osnaburg cuttings	9.50— 10.50
Underwear cuts, bleached	14.50— 15.00
Underwear cuts, unbleached	14.50— 15.00
Sun tan khaki cuttings	5.00— 5.50
American linen cuttings	6.75— 7.25

Cotton Rags

The following are prices, cents per pound, paid by dealers and brokers f.o.b. New York:

	per cwt.
No. 1 roofing (Chicago)	.70— .75
No. 2 roofing (Chicago)	.60— .65
Twos and blues, repacked	1.75— 2.00
Thirds and blues, repacked	1.50— 1.75
No. 1 whites, repacked	—
No. 1 whites miscellaneous	—
No. 2 whites, repacked	—
No. 2 whites, miscellaneous	—

RAGS (Foreign)

(ex dock New York City)

New Rags

	per cwt.
New dark cuttings	Nominal
New mixed cuttings	
New light silesias	
Light flannelettes	
Unbleached cuttings	
New white cuttings	
New light oxfords	
New light prints	

Old Rags

	per cwt.
No. 1 white linens	Nominal
No. 2 white linens	
No. 3 white linens	
No. 4 white linens	
No. 1 white cottons	
No. 2 white cottons	
No. 3 white cottons	
No. 4 white cottons	
Extra light prints	
Ordinary light printe	
Medium light prints	
Dutch blue cottons	
French blue cottons	
French blue linens	
Checks and blues	
Linsey garments	
Dark cottons	
Old shopperies	

ROPE and BAGGING

F.o.b. and ex dock New York City

Gunny No. 1, domestic	—
Gunny No. 1, foreign	—
No. 1 manila rope, domestic	—
No. 1 manila rope, foreign	—
New burlap cuts (soft)	—
Sisal strings	—
Mixed strings	—

WASTE PAPER

The following are prices, dollars per net ton, paid by brokers and large dealers for carload quantities of baled stock, f.o.b. cars New York:

No. 1 hard white envelope cuttings	95.00—100.00
No. 1 hard white shavings	80.00— 85.00
No. 1 soft white shavings	50.00— 55.00
Soft white shavings, uncoated	60.00— 65.00
Fly leaf shavings No. 1	20.00— 25.00
Fly leaf, woody, No. 1	20.00— 22.50
Mixed colored shavings	16.00— 18.00
No. 1 books and magazines	18.00— 20.00
Ledger stock, white, No. 1	40.00— 45.00
Ledger stock colored, No. 1 (Midwest ship)	30.00— 32.50
Now manila envelope cuttings (free of groundwood)	65.00— 70.00
New manila envelope cuttings (containing groundwood)	45.00— 50.00
Manila tab cards	55.00— 57.00
Colored tab cards	42.50— 45.00
New northern kraft envelope cuttings	60.00— 65.00
Triple sorted kraft, 100%	35.00— 37.50
No. 1 old kraft	25.00—
White news cuts, No. 1	40.00— 45.00
No. 1 overissue news	15.00— 17.00
Folded news, special	13.00— 14.00
Folded news, ordinary	11.00— 12.00
Old corrugated boxes	15.00— 17.00
New jute corrugated cuts	19.00— 20.00
Mill wrappers	9.00— 11.00
Boxboard cuttings	4.00— 5.00
No. 1 mixed paper	1.00— 7.00

CHEMICALS

F.o.b. New York City

Alum, ammonium	
Granular, bags, works, cwt.	4.30—
Lump, drums, works, cwt.	5.05—
Powdered, drums, works, cwt.	5.20—
1-Arginine, drums, kilo	90.00—
Blanc Fixe	
Direct process, bags, c.l., works, ton	145.00—
L. c. l., ton	155.00—
Bleaching Powder, drums, cwt.	—
Casein, domestic acid precipitated	
30-mesh bags, 10,000-lb. lots or more, shipping point, lb.	.56—
80-mesh bags, 10,000-lb. lots or more, shipping point, lb.	.64—
China Clay, domestic dry-ground, airfloat, 99%	
325-mesh bags, c.l., Georgia works, ton	10.00— 12.00
300-mesh bags, c.l., Georgia works, ton	13.50— 14.50
Imported, white, lump, bulk, c. l., ex dock Phila, Portland, Me., gross ton	20.00— .35.00
Chlorine, liquid	
Tanks, single units, works, freight equaled, cwt.	3.25—
Glycerine, refined (CP, USP) 99%, drums c. l., delivered lb.	.30⅞—
Litharge, commercial powdered	
Barrels, c. l., works, freight equaled lb.	.13¾—
Rosin, gum, c. l., f.o.b. New York, cwt.	
K, M	13.50—
N	13.85—
WG	14.00—
WW	14.50—
Rosin, wood, c. l., f.o.b., shipping point, cwt.	
K, M	12.00— 12.25
N	12.35— 12.45
WG	12.55—
WW	12.75— 12.85
Saltcake, domestic, bulk works, 100% Na_2SO_4 basis ton	28.00—
Soda Ash	
Dense, 58%, paper bags, c.l. works, cwt	1.90—
Light, 58%, paper bags, c.l. works, cwt	1.85—
Soda, caustic	
Flake, 76%, drums, c. l. works, freight equalled, cwt	5.20—
Solid, 76%, drums, c. l. works, cwt.	4.80—
Sodium Silicate	
40°Be, 1:3.2, turbid, drums, c. l., works, cwt.	1.65—
52°Be, turbid, 1:2.4, drums, c. l., works, cwt.	2.65—
Starch	
Pearl, 140-lb. bags, cwt.	7.51—
Pearl, 100-lb. bags, cwt.	7.36—
Powdered, 100-lb. paper bags, cwt.	7.48—
Sulfur, crude	
Bulk, c. l. mine, contract, long ton	24.00—
Talc	
Domestic, fibrous, N. Y., grd., bags, c. l. works, ton	28.00—
Canadian, ground, bags, c. l. works, ton	20.00— 35.00
Titanium Pigment	
Calcium-rutile base, regular, bags, c. l., lb.	.09½—
High-tinting, drums, c. l., lb.	.14½—
Zinc Oxide Pigment, American process	
Lead-free, bags, c. l. freight allowed, lb.	.14½—
Leaded, 35%, bags, c. l., freight allowed, lb.	.15⅜—

WOOD PULP

Quotations on domestic and Canadian pulp, dollars per short air-dry ton delivered consuming mills including basic allowances, follow:

Bleached sulfite, No. 1	155.00—
Bleached sulfite, Canadian	155.00—
Unbleached sulfite	135.00—
Unbleached sulfite, Canadian	135.00—
Bleached soda	150.00—
Bleached soda, Canadian	150.00—
Kraft, bleached hardwood	152.00—
Kraft, bleached	157.00—
Kraft, bleached southern	160.00—
Kraft, bleached Canadian	160.00—162.50
Kraft, unbleached southern	120.00—
Kraft, unbleached, Far West	125.00—
Kraft, unbleached Canadian eastern	135.00—
Kraft, unbleached Canadian western	120.00—125.00
Kraft, semi-bleached southern	—
Sulfite screenings	—
Sulfate screenings	—

Quotations on imported wood pulp, dollars per short air-dry ton on dock American Atlantic ports, follow:

Bleached sulfite Swedish, freight allowed	155.00—
Bleached sulfite, Norwegian, del'd with limited freight allowance	155.00—
Bleached sulfite, Finnish, freight allowed	155.00—
Unbleached sulfite, Swedish, freight allowed	135.00—
Unbleached sulfite, Finnish, freight allowed	135.00—
Kraft, unbleached, Swedish, freight allowed	125.00—
Kraft, unbleached, Finnish, freight allowed	125.00—
Kraft, bleached, Swedish, on dock	157.50—162.50
Kraft, bleached, Norwegian	155.00—

PAPER

Quotations are mill quotations Chicago

Boards (prices per ton, delivered in Chicago, 10 tons or more):	
Plain chip	107.50
News vat lined chip	110.00
.009 chip, rolls	100.00
Filled news	111.50
Solid news	114.50
White vat lined chip	144.50
Chip tube and can stock	112.50
Single manila lined chip	162.50
Single jute lined chip	147.50
Container, 42-lb.	
Kraft liner (per 1000 sq. ft.)	2.68
White patent coated	
.020	175.00
.018	177.50
.016	182.50

Book Paper (f.o.b. Chicago, c.l. skids per cwt):	
No. 1 enamels	20.80
No. 2 enamels	19.80
Machine-coated, 45- to 100-lb.	15.55— 19.00
60-lb. + uncoated offset, 25 × 38 (2000 lb.)	22.25
"A" grade English finish untrimmed, 25 × 38 (2000 lb.)	21.10

Rag Content Bond (white, 5000 to 10,000-lb. sub 20, ream sealed cartons):	per cwt
100% rag	—
75% "	—
50% "	—
25% "	—

Rag Content Ledger (white, 5000 to 10,000 lb., ream sealed cartons):	
100% rag	—
75% "	—
50% "	—
25% "	—

Sulfite Bond (white, 5000 to 10,000-lb. sub 20, ream sealed cartons):	
No. 1	—
No. 2	—
No. 4	—

Sulfite Ledger (white, 5000 to 10,000-lb., ream sealed cartons):	
No. 1	—
No. 2	—
No. 4	—

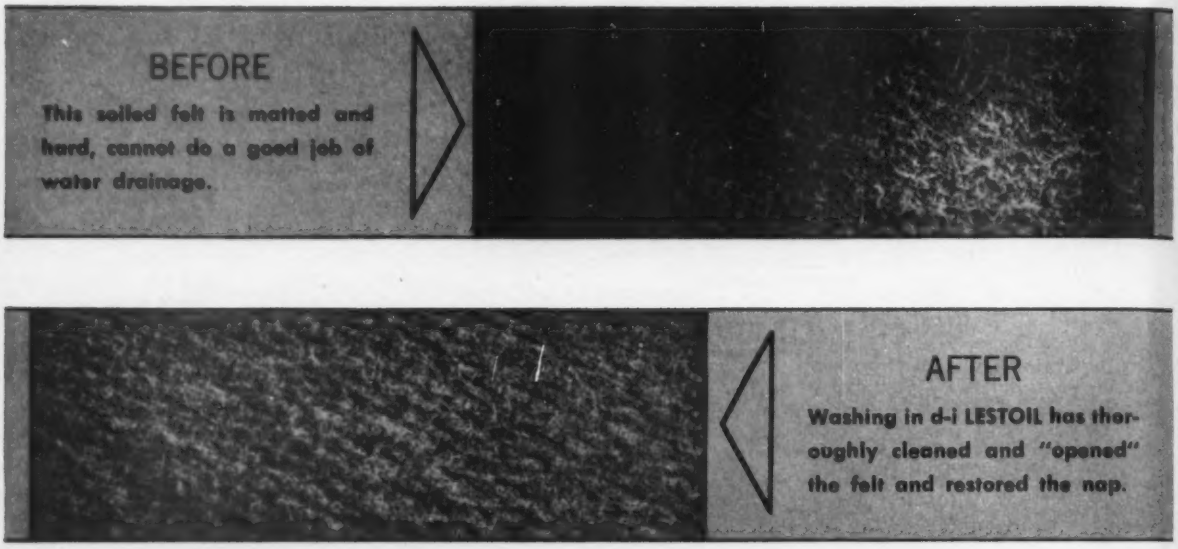
Newsprint (contract base price)	per ton
Rolls, standard	135.00
Sheets	Standard differentials

Kraft Wrapping — Natural (standard rolls 9- and 15-in. diam.)	per cwt
70-lb. and heavier	9.00
60-lb	9.25
50-lb.	9.50
40-lb.	9.75
35-lb.	10.25
30-lb.	11.00
25-lb.	11.75
20-lb.	12.75

No. 1 Kraft Butcher — Pink	per cwt
40-lb. only	10.50

(Sheets — Plus 50c cwt)

Here's Proof!


BEFORE
This soiled felt is matted and hard, cannot do a good job of water drainage.
AFTER
Washing in d-i LESTOIL has thoroughly cleaned and "opened" the felt and restored the nap.

WASHING WITH D-I LESTOIL INSURES CLEAN, SOFT, POROUS FELTS!

D-I LESTOIL LIQUID DETERGENT is ideal for washing felts — on or off the machine. A special formulation, combining wetting, penetrating and cleansing agents, it removes all types of soil and contaminants which plug the felt, impair drainage and shorten felt life.

And although D-I LESTOIL is a powerful solvent for oils, grease, wax and all other types of soil, it is absolutely harmless to the finest woolens and synthetic mixtures — even when used full strength. Rinses out freely, quickly and completely.

D-I LESTOIL will leave your felts soft, clean and open, assuring improved drainage and a longer useful life. Effective in either hot or cold, hard or soft water.

Write us today for full information.

LESTOIL, INC.

96 Garfield Street

HOLYOKE, MASS.

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Division III—Pulpwood logging

St. Anne Power Co., Beaupre, Quebec (12.24); Abitibi Power Paper Co., Iroquois Falls, Ont. (14.80); Abitibi Power Paper Co., Saulte St. Marie Ont. (16.76).

Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Jackson (.00); Owens-Illinois Glass Co., Dallas Box (.00); Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Detroit, Mich. (.00) Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Seymour, Ind. (.00); International Paper Co., Geneva, N. Y. (.00); Crown Zellerbach Corp. (Gaylord Container Div.), Plymouth (.00); Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Garland (.00); International Paper Co. (Single Service Division), Waco, Texas (.00); Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Carpentersville, Ill. (.00); Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Wash. (.00); Weyerhaeuser Timber Co. (Kieckhefer-Eddy Div.) Hastings, Neb. (.00); International Paper Co. (Container Division), Mason (.00); International Paper Co., Auburndale, Fla. (.00); Fibreboard Paper Products Co., San Joaquin, Calif. (.00); International Paper Co., Houston, Texas (.00); International Paper Co. (Single Service Division), Turlock, Calif; Fibreboard Paper Products Co., Denver, Colo. (.00).

Necrology . . .

had been vice president of sales for a number of years, and remains an honorary vice president. He had been on the executive and financial committees of the Writing Paper Manufacturers Association and had served on the board of governors of the Sulfite Paper Manufacturers Association and on the board of directors of the Business Mail Foundation.

Colter Rule

Colter Rule was manager of Champion Paper & Fibre Co.'s Cincinnati district sales office for 30 years until his retirement last year. Previous to joining Champion in 1929, he had been vice president of Dwight Brothers Paper Co. and manager of the Whitaker Paper Co.'s Chicago and Pittsburgh sales offices.

Polyvinylidene chloride latex — a new coating for paper

National Starch & Chemical Corp. has developed a polyvinylidene chloride water-based latex (50 per cent solids) that can be used as a coating on porous surfaces such as kraft paper and corrugated liner board. Among its advantages are: (1) one-third the moisture vapor transmission rate of polyethylene; (2) a much superior resistance to transmission of gases; and (3) resistance to prolonged exposure to acids, solvents and alkalis.

Among the envisaged applications of the new coating are: milk cartons, bread wraps, butter wraps, frozen food containers, cereal boxes, paper drinking cups, and even paperboard containers for lubricating oils and greases. The new resin is priced at 45 cents per pound on a dry basis.

Paper industry spends more on research

A survey made by the Institute of Paper Chemistry shows that expenditure for research and development by the paper industry has increased 3 to 4 times since 1949. However, on a percent-of-sales basis, no company among those surveyed has yet reached the 1 per cent level. The 30 companies surveyed spent 0.44 per cent of their 1949 sales on research and 0.65 per cent of the sales in 1959.

High retention titanium dioxide

DuPont's Pigments Division has succeeded in developing a high retention titanium dioxide which is saving paper mills as much as 15 per cent in pigment costs. Titanium dioxide contents of finished sheets show an increase from 5.0 per cent for the conventional titanium dioxide to 6.1 per cent for the high retention TiO_2.

Surface pretreatment of paperboard with borax

Pretreatment of paperboard with borax, according to DuPont scientists, prevents deep penetration of sizes and coating mixture ingredients into the sheet. This should lead to a wider use of polyvinyl alcohol for surface sizing and superior properties of coated paperboard.

Electrostatic dry coating process

Brown-Bridge Mills Inc., is now using a new dry coating process to eliminate the use of volatile organic solvents. The equipment, developed in cooperation with Battelle Memorial Institute and Black-Clawson Co., consists of a 60-in. electrostatic coater and a fine grinder capable of pulverizing the dry powder to 1-50 micron particle size. The coater is designed to apply 15 lb. coatings. It is equipped with plastic hood cover and 0.010 inch wires to produce corona for charging and depositing the powders.

an Invitation to PAPER COATERS

to explore
the possible advantages,
both physical and economic,
of using animal bone glue
as the adhesive in paper coating

ANIMAL GLUE, once used as the adhesive in paper coatings, is back in the picture. Improved glue qualities and new coating formulations have shown definite advantages—substantiated by laboratory evaluation, a full-scale paper mill trial, and actual printing tests.

For a more detailed announcement of this development (printed on glue-coated paper), a technical bulletin describing the method used, or samples of DARLING's coating grade glue, write:

DARLING & COMPANY
GLUE DIVISION
4201 South Ashland Avenue • Chicago, Illinois

DARLING'S improved BONE GLUE

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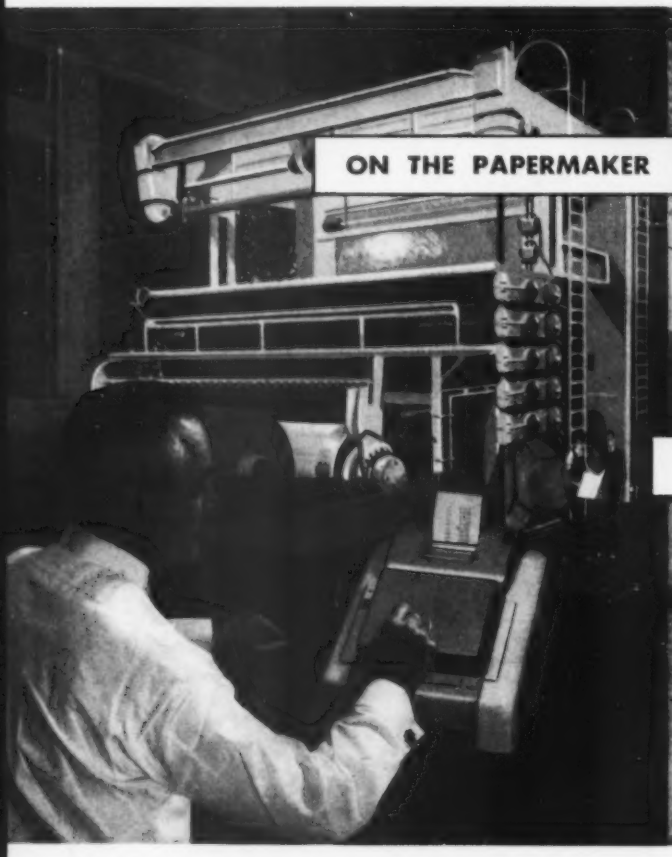
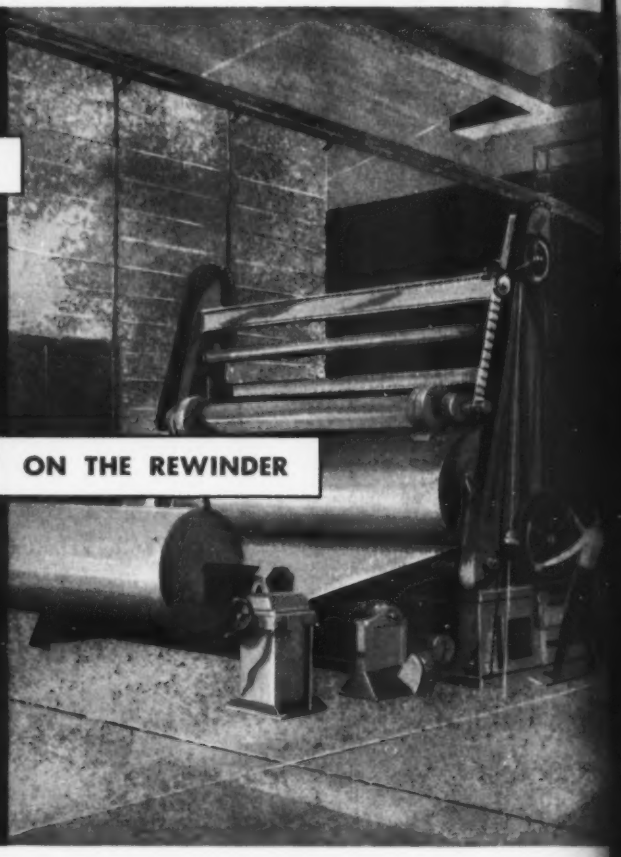




POST... KEEPS THE FIGURES AT YOUR FINGERTIPS

Post Electronic Products has developed a special lineal footage measuring system for use in the paper industry. Already proven in mill installations, this remarkable device eliminates guesswork . . . *accurately* measures paper, in linear lengths, as it is gathered on the paper making or rewinding machines.

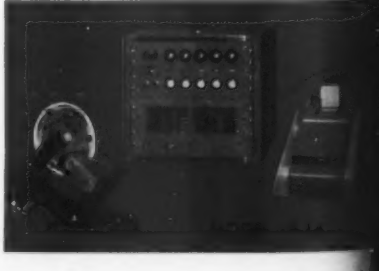
Paper can now be furnished to your customer in specified rolls of certain length, and linear footage may be stenciled on each roll. The hazardous practice of weighing to determine paper quantity is eliminated!

This unique system is composed of a Lineal Footage Actuator . . . a Post Decitron Electronic Counter . . . a Translator . . . a Printer . . . and a Paper Break Detector.

The printer, or "readout" may be located in another area . . . convenient to the paper mill superintendent or some key individual who must keep track of production figures. All printers are equipped with 5 digits parallel entry to record actual footage per roll, and a special unit also accommodates a 4 digit 'serial-entry' which can be used to code specific rolls. (i.e. — .0017 would be roll #17 and the five figures following the serial entry would specifically indicate the footage in that roll).

Nylon covered tracking wheels accurately measure production. Special photo electric controls constantly scan the web to signal a paper break to the counter, should such occur. Accuracy of the Post system has been proven to within plus or minus 0.1%.

Get all the details. Write or call today! Post representatives are in all major areas.



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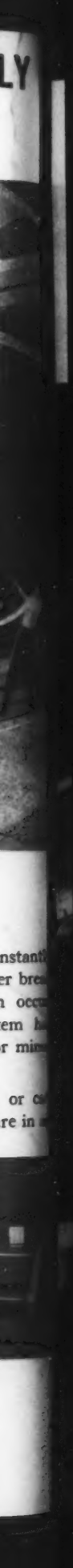
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